

Functional Projections and Thematic Role Assignment in Chinese

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Declaration

I declare that this thesis has been composed by myself and that the research reported therein has been conducted by myself unless otherwise indicated.

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Edinburgh, 21 December 1992

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Abstract

The question that motivates this thesis is how to account for the semi-free word order of Chinese. This is addressed in terms of the licensing mechanisms that are operative in Chinese. The theoretical context of this investigation is the current emphasis on the use of functional categories to explain syntactic phenomena.

The past few years have seen an explosion in the range of functional categories assumed to be available and relevant in the construction of a syntactic analysis. The proliferation of functional categories brings with it a change in the emphasis of grammar, whereby the burden of syntactic explanation has shifted from the substantive elements to the functional elements. This has had far reaching consequences for theories of parametric variation. If the surface properties of a language are determined by the functional categories, then differences in surface properties must be determined by differences in the functional categories. It follows from this that the locus of parametric variation will be the lexical properties of the functional categories involved. We therefore expect all languages to display equivalent complexity in the functional lexicon. The research on functional categories, however, has concentrated largely on inflectional morphemes that are argued to trigger head movement and hence affect surface order. What of a language like Chinese with no agreement or inflection? Either Chinese is evidence against the universality of the lexical functional distinction or the functional categories of Chinese are morphologically different. The hypothesis is that the lexical-functional distinction is still relevant. The question then is what are the functional categories of Chinese, and what is their relationship to the licensing of the satellites of a lexical head.

The functional categories of Chinese fall into operator-type categories such as Det, and Neg, and closed class words such as functional prepositions. Examples of both types are investigated here. An analysis of negation is given as evidence for the operator type of functional projection. The thesis investigates a range of preposition-like items that are argued to fall under the closed class type of functional category. These include coverb constructions, verb reduplication and the *ba* construction. Prepositions are commonly analysed as Case assigners with the underlying assumption that their distribution is determined in part at least by Case requirements. Abstract Case assignment is shown to be unsuccessful in predicting distribution of satellites in Chinese. An alternative analysis is given for prepositions and coverbs in Chinese in which they are functional heads that interact with the thematic grid of the head noun or head verb in whose domain they are generated. The analysis adopts the concept of thematic mediation developed in Adger and Rhys forthcoming and shows how it explains the distribution and behaviour of prepositions in both the nominal and the verbal projection. Returning to the original question of the syntactic mechanisms that are operative in deriving the word order of Chinese, the hypothesis investigated in this thesis is thus that surface order in Chinese is a function of these functional prepositions.

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Chapter 1

Introduction

1.1 The problem of Chinese word order

The work in this thesis began as an investigation into the properties of word order in Chinese. Chinese has a basic SVO word order, as in:

- (1.1) xiaomai xuexi yingyu.
 Xiaomei study English
 ‘Xiaomei studies English.’

However the direct object can also appear preverbally, either via verb reduplication, the focus construction, topicalisation or the *ba* construction:

- (1.2) ta xue yingyu xue-le san nian.
 she study English studied three years
 ‘She studied English for three years.’
- (1.3) ta yingyu xue-le san nian.
 she English studied three years
 ‘She studied English for three years.’
- (1.4) yingyu ta xue-le san nian.
 English she studied three years
 ‘English, she studied for three years.’
- (1.5) ta ba yingyu laoshi da de hen tong.
 she *ba* English teacher hit such that very hurt
 ‘She hit her English teacher so much that he hurt.’

In the examples given, the preverbal position of the direct object is obligatorily triggered by the *Postverbal Constraint*. This is a descriptive generalisation that at most one constituent can be licensed postverbally. With the exception of (1.2), it should be noted that the constructions can also be used optionally (ie. without the postverbal trigger) for a range of different discourse effects¹

The Postverbal Constraint has been an assumption of linguists working on Chinese since the influential descriptive work of Chao (1968). The first attempt to provide an explanation for this effect within a generative framework was in Huang's seminal dissertation (Huang 1982b). Huang proposed that the Constraint be accounted for by the following X-bar filter which he claimed to be operative at LF (p.40):

(1.6) The X-bar structure of Chinese is of the form:

- a. $[X^n X^{n-1} YP^*]$ iff $n=1$ and $X \neq N$
- b. $[X^n YP^* X^{n-1}]$ otherwise.

This solution has a number of both theoretical and empirical problems (Li 1985; Yan 1991). From the more general theoretical point of view, the X-bar filter runs counter to basic assumptions of X-bar theory as a highly constrained module of UG, in that it allows for both category specific and level specific variation. This undermines the central role of X-bar theory in restricting the range of structures made available by UG. The X-bar filter also makes a number of wrong predictions. It rules out a range of data in which, contra the Postverbal Constraint, more than one constituent appears postverbally. Conversely, it fails to rule out the postverbal appearance of a number of constituents that are in fact only licensed preverbally, for example PPs.

Expanding on the proposals for directionality of Case and theta assignment in Travis 1984, Li (op.cit.) proposes an alternative solution to the Postverbal Constraint in terms of the Case properties of different syntactic categories in Chinese. The principal claim

¹There is basically a definiteness distinction between the preverbal and postverbal position, hence the following difference in interpretation:

- (i) wo mai le liwu.
I buy perf gifts
'I bought some gifts.'
- (ii) wo ba liwu mai le.
I ba gifts buy perf
'I bought the gifts.'

of this Case theoretic approach is that the restriction to a single postverbal constituent is a consequence of the competition between constituents for a single structural Case position. This is an improvement on Huang's account in that it acknowledges that the Postverbal Constraint, to the extent that it exists, is not a purely configurational constraint, but depends on properties of the actual constituents involved. However, it relies crucially on the assumption that Chinese is head final despite considerable evidence to the contrary (Goodall 1990; Mulder and Sybesma to appear; Zhou 1989). Li in fact claims that abstract Case accounts for both preverbal and postverbal distribution of constituents, however, this claim is discussed in detail in chapter 3 and shown to make the wrong predictions for the distribution of a range of elements, most notably subjects and prepositional phrases.

A problem with both the above approaches to word order is that their principal aim is to explain the Postverbal Constraint. However, the Postverbal Constraint distorts the picture of the word order problem in Chinese by placing the entire emphasis on this inaccurate restriction on the postverbal position. A more coherent picture of the problems of word order has to take into account the restriction of adverbials to the preverbal position and the relationship between preverbal arguments and adverbials, as well as the instances in which more than one constituent is licensed postverbally. Furthermore, a range of data is given in Yan 1991 and Tang 1990 in which more than one constituent is licensed postverbally, for example²:

(1.7) *wo fang shu zai zhuozi shang.*

I put book at table on
'I put the book on the table.'

(1.8) *wo kan le sange xiaoshi shu.*

I look perf three hours book
'I read for three hours.'

(1.9) *ta gei ni yige shoubiao.*

she give you one watch
'She's giving you a watch.'

These data cast doubt on the basic generalisation of the Constraint.

²The example in (1.7) is not accepted by all of my informants

Both Huang's and Li's accounts rely solely on formal properties of the structures involved. However, the analysis of the preverbal elements indicates that it is the relationship of an element to the argument structure and thematic grid of the lexical head that is relevant in an account of the positions in which it might be licensed. This is the approach taken in this thesis. The range of relations between a lexical head and its satellites is explored in terms of the licensing mechanisms associated with them, with a view to establishing their impact on the word order problem. The approach developed is then applied to the *ba* construction, as in (1.5). This is a construction in which the relationship of the *ba* phrase to the verbal head is a source of much debate. These questions are addressed within the context of the lexical-functional distinction that has been developed in recent years in the principles and parameters approach.

1.2 The lexical-functional distinction

The principles and parameters approach (Chomsky 1986a, Chomsky 1988a) is not of itself an actual theory of language, so much as set of assumptions about the appropriate architecture for a theory of language. This approach breaks away from the rule-based tradition, rejecting any notion of language specific or construction specific rules. Instead, Universal Grammar (UG) is viewed as an invariant system of principles, and a set of parameters, the value of which is fixed by an individual language. The properties of an individual language should then fall out as a result of the interaction between the principles of UG and the parameter values of the particular language. Although intuitively pleasing, one of the problems with this approach has been the indeterminacy of the notion of parameter. Without clear constraints on what is parameterisable, and how parameters should be formulated and constrained, the concept introduces too much power into the grammar. In other words, if any area of the grammar is parameterisable, the grammar will predict much more variation in natural language than is in evidence from actual language data.

This problem for a while undermined the intuitive value of the principles and parameters approach. A recent development within the approach, however, has brought to the fore a perspective on the lexicon which offers a solution to the problem by defining a clearly restricted domain within which languages are proposed to vary.

The development referred to is the explosion in the number of analyses which crucially rely on the syntactic projection of some morphological category. This has inevitably lead to an increase in the range and variety of functional categories assumed to be available and relevant in the construction of a syntactic analysis. The proliferation of these functional categories brings with it a change in the emphasis of the grammar, whereby the burden of syntactic explanation has shifted from the substantive elements to the functional elements. The most radical conclusion of this trend is that the substantive elements do not have any syntactic features at all. Moves in this direction can be seen in accounts involving category neutralisation of substantives (Adger and Rhys 1991; Grimshaw 1991a, Ronnie Cann *pc*). More and more language specific facts are shown to be derivable via an analysis of the functional morphemes in the language, and correspondingly, similarities between languages are shown to stem from similarities in the functional structure of the languages.

These developments have had far reaching consequences for theories of parametric variation and the concept of a parameter in universal grammar. If the surface properties of a language are determined by the functional categories of the language, then differences in surface properties of different languages must be determined by differences in the functional categories of those languages. It follows from this that the locus of parametric variation will be the lexical properties of the functional categories involved. So, for example, Pollock 1989 developing ideas of Emonds 1978; Emonds 1985, attempts to derive a range of data in French and English from a distinction in the properties of an Agreement functional projection immediately dominating the verb.

This restriction of parametric variation to the set of functional categories is an intuitively pleasing result in that it constrains the range of possible variation³. It also has consequences for theories of language acquisition, since the task of parameter setting is now reduced to learning the functional vocabulary of the language. This hypothesis is supported by psycholinguistic studies of child language acquisition and by studies of language deterioration in aphasics which indicate that functional vocabulary and substantive vocabulary are located in different areas of the brain (Bradley and Garrett 1983; Shillcock and Bard *in press*).

³Although as argued in the next chapter, the effective restrictiveness of such an approach depends on the extent of abstractness licensed in the lexicon.

The general question that motivates this thesis is thus the following. If the lexical-functional distinction is cognitively “real” and if the sole locus of parametric variation is the specification of the functional categories of a language, then we would expect all languages to display an equivalent range of complexity in the functional lexicon⁴. The research on functional categories, however, has concentrated largely on a range of bound morphemes that are argued to trigger head movement and hence affect surface order, some also showing agreement properties with a maximal projection. What of an isolating language like Chinese with no agreement, or inflection and almost no bound morphemes? Either Chinese is evidence against the universality of the lexical-functional distinction or the functional categories of Chinese are morphologically different from those more commonly studied. Given the psycholinguistic evidence, the hypothesis is that the lexical functional distinction is still relevant. The question then is what are the functional categories of Chinese and what is their relationship to the licensing of the satellites of a lexical head.

1.3 Summary of Chapters

Chapter 2 summarises many of the assumptions and claims relating to functional categories and their role in the grammar. It discusses how functional categories differ from lexical categories, and the consequences of this distinction for the architecture of the grammar, and hence for theories of parametric variation and language acquisition. The notion of functional category is then applied to Chinese with a view to establishing the range and variation in functional categories in Chinese. It is hypothesised that Chinese makes up for the lack of inflectional morphemes with a range of functional prepositions that interact with the thematic structure of the lexical head they appear with. An analysis is given of negation in Chinese as an example of the application of the notion of functional category to some language specific data. The analysis of negation also brings to light some further interesting theoretical properties of functional projections.

It might be supposed that the role of these functional prepositions would be to

⁴Note this is not the view of Fukui and Speas (1986) who claim that Japanese does not have functional categories. Given the psycholinguistic evidence for the lexical functional distinction, this is like claiming that Japanese is language without the superficial trimmings of syntax, something like the “language of thought” of Fodor (1975)

assign Case to their NP complement. Chapter 3 investigates in detail the relevance of abstract Case to Chinese, and comes to the conclusion that it does not make the correct predictions for the distribution of phrasal elements. The chapter addresses both standard notions of abstract Case (Chomsky 1986a) and the very detailed proposal for the Case theoretic properties of Chinese given in Li (1985). The intuitive motivation for the concept of Case is discussed and a distinction is drawn between formal licensing and Case assignment, the claim being that formal licensing but not Case is a feature of Universal Grammar.

Chapter 4 gives an alternative analysis of prepositions and coverbs in Chinese as functional categories which interact with the thematic grid of the head noun or head verb in whose domain they are generated. The analysis adopts the concept of thematic mediation developed in Adger and Rhys 1991 and shows how this explains the distribution and behaviour of prepositions in both the nominal and the verbal projection.

Chapter 5 argues that the head *ba* in the controversial *ba* construction is also a thematic mediator, but one that differs from other thematic mediators in that it carries additional semantic properties that interact with event structure. This is captured via an extension to Grimshaw's notion of aspectual roles. The ongoing debate over whether *ba* itself assigns a thematic role, or is merely a Case assigner is thus resolved by the claim that *ba* does have independent semantic content, but it is aspectual and not thematic. This captures the constraints on *ba* and the interpretation of sentences involving *ba*.

Chapter 2

Functional Projections in UG and in Chinese

2.1 Introduction

Since Stowell's proposal (Stowell 1981 adopted in Chomsky 1986b) to reinterpret the exocentric clausal category S as the projection of two *functional* categories, Inflection and Complementiser, there has been an explosion of functional items proposed as X-bar theoretic zero-level categories that head their own projection. This has brought with it a new division of labour in syntax between the lexical projections, which carry selectional and thematic information, and the functional projections, which carry syntactic and morphological information.

While Chinese does not have inflectional categories, it is argued nonetheless to display a range of functional projections headed by free morphemes. In this chapter, an analysis is given of one particular functional projection in Chinese, namely negation. This illustrates the type of analysis that becomes available once the projection of functional categories is exploited, and at the same time introduces some interesting properties of functional projections. First some of the current assumptions about the structure of Chinese are very briefly outlined. The lexical-functional distinction is then explored in more detail, examining some of the current theoretical claims about the status and role of functional categories, the consequences that this has for the kinds of possible syntactic analyses, and some of the constraints on functional projections that have been proposed and that are adopted in this thesis.

2.2 Outline of Chinese Syntax

Chinese confounds many of the standard assumptions relating to surface structure and morphological complexity. It permits a very free word order with a predominantly *Topic-Comment* underlying structure, has *wh-in-situ*, and uses empty pronouns. These are features generally associated with morphologically complex languages with overt case marking on complements and complex verbal inflection paradigms. Chinese, however, displays neither overt case marking nor any form of verbal inflection. In this section, each of these surface properties of Chinese is described briefly¹.

2.2.1 Word Order

The basic unmarked word order of Chinese is *SVO*, as in:

- (2.1) *wo chi le wufan.*
 I eat *le* lunch.
 'I've eaten lunch.'

This could also be expressed with an *SOV* order or an *OSV* order. In both cases, no morphological marking of either subject or object is required:

- (2.2) a. *wo wufan chi le.*
 I lunch eat *le.*
 'I've eaten lunch.'
- b. *wufan wo chi le.*
 lunch I eat *le.*
 'I've eaten lunch.'

In these examples, the form of the object *wufan* ('lunch') is constant. What differentiates the two sentences to give the correct interpretation are the intonational contours. In both sentences, the object *wufan* ('lunch') is stressed, but (bb) has a pause after *wufan* marking it as the topicalised object in a topic-comment structure. This contradicts generalisations about free word order languages which assume a correlation between a fully fledged overt morphological case system and free constituent order².

¹This section is merely a description of surface properties of Chinese. It does not make claims about the correct analysis of these properties. Nor does it make claims as to the underlying structures involved. As such, no tree structures are given.

²The question of word order in Chinese is addressed in greater detail in the remaining chapters of the thesis

2.2.2 Wh-in-situ

Chinese has no overt WH-movement. That is, the WH constituent appears in the same surface position as its non-WH counterpart:

- (2.3) a. ta mai neiben shu?
 she buy which book?
 ‘Which book is she buying?’
 b. ta mai zheiben shu.
 she buy this book
 ‘She is buying this book.’

This is not to say that the WH constituent cannot appear in the sentence initial position, but that where it does so, it is not an instance of WH-movement. It appears preverbally as an instance of the same mechanism via which the non-WH constituent appears preverbally.

- (2.4) a. neiben shu ta xiang mai?
 which book she want buy?
 ‘Which book does she want to buy?’
 b. zheiben shu ta xiang mai.
 this book she want buy
 ‘She wants to buy this book.’

Furthermore, fronting of WH constituents brings to light the discourse constraints that apply to this mechanism, in that fronting of non-D-linked WH-terms (Pesetsky (1987)) is not licensed:

- (2.5) * shenme shu ta xiang mai?
 what book she want buy?

It should also be pointed out that while there is no *overt* WH-movement, C-T James Huang (Huang 1982a) has argued convincingly that the constraints on wh-in-situ are predicted if WH-movement is assumed to take place at LF and be constrained by the ECP.

2.2.3 Empty Pronouns

The last feature of Chinese to be outlined here is the use of phonologically null (empty) pronouns. Unlike pro-drop languages which employ only empty subject pronouns, Chi-

nese makes extensive use of both subject and object empty pronouns:

(2.6) Zhangsan shuo *e* xihuan Lisi

Zhangsan say *e* like Lisi
'Zhangsan says he likes Lisi.'

(2.7) Zhangsan shuo Lisi xihuan *e*

Zhangsan say Lisi like *e*
'Zhangsan says Lisi likes him/her/them.'

One of the controversial issues of Chinese syntax has been to establish the formal properties of these empty pronouns. Are they PRO, pro or some other category that falls outwith the commonly assumed paradigm of empty categories?

Huang (Huang 1984; Huang 1987) shows that the subject and object empty pronouns differ in their binding properties in that the subject but not the object can be bound to an overt NP in the preceding clause. In other words, in (2.6) above the subject empty pronoun can be coreferential with the matrix subject *Zhangsan*. In (2.7), on the other hand, coreference with the matrix subject is ruled out. Huang's analysis of this data rules out this binding by treating the empty object as a variable that must be A-bar bound. It posits a phonologically null topic which is itself discourse bound as the binder of the empty object.

One of the problems with this analysis is that with different vocabulary, the unacceptable binding becomes acceptable. So in the following example, the matrix subject *xiaotou* is bound to the embedded empty object:

(2.8) xiaotou yiwei meiyou ren kanjian-le *e*.

theif think not person saw *e*
'The thief thought no-one had seen her.'

This data is given by Xu 1986, who argues that the empty pronoun is completely lacking in syntactic features. Huang's counterattack is that examples such as the above involve non-neutral vocabulary so that pragmatics override the syntactic constraints. Ascertaining the status of such data remains one of the problems of research in Chinese empty categories.

One final observation about empty categories in Chinese is in relation to standard assumptions that relate the licensing of empty pronouns to functional categories. It is

generally assumed that there is some notion of semantic *recoverability* involved in the licensing of an empty subject. Put more concretely, it is proposed that an empty subject is licensed where the agreement features on the verb are sufficient to *recover* the number and person features of the subject. Chinese again confounds this generalisation since, verbal agreement is not merely insufficient to recover the features of the subject, it is completely absent.

With this outline of Chinese grammar, we return to the question of functional categories and functional projections.

2.3 Functional projections

The proposal to extend X-bar theory to the non-lexical categories I^0 and C^0 (Stowell 1981) was more theoretically motivated than empirically, the goal being to bring non-lexical categories in line with lexical ones, thereby reducing the complexity of the grammar. Subsequent work, following on from the proposals in Pollock 1989, has recognised that a more articulated structure for the inflectional elements in a clause can be motivated on the basis of the morphological properties of the language and facilitates the explanation of various language specific properties. A wide range of functional heads in addition to Pollock's original Tense and Agr have been proposed, including Number, Aspect, Negation and Mood among the verbal heads and Determiner among the nominal heads. This has thrown up a number of interesting theoretical questions relating to the status and definition of functional categories and their relation to lexical categories, the potential redundancy of the word formation component, and the role of functional categories in parametric variation and language acquisition. Some of the issues relating to these questions are discussed in the next sections.

2.3.1 The lexical-functional distinction

In discussing the distinctions between lexical and functional categories one of the first problems is that it is still very much an open question exactly what the set of functional projections are. Is there a set of functional categories in UG, out of which only a subset are manifested in any individual language? Or do all languages project the same set of functional categories regardless of whether an individual language displays some pho-

nological reflex for every functional category? One solution to this question, adopted often only implicitly, takes the morphological motivation for functional categories to its natural conclusion. The assumption is that a language has precisely the set of functional categories for which it provides morphological evidence. In the most restrictive of this type of approach, a functional projection is only licensed where it has an overt phonological signature (see section 2.3.4).

A further problem in the discussion of the properties of functional categories is that it is not yet clear whether the class of functional categories pattern together as a coherent syntactic class in the way that lexical categories appear to. For example, a standard assumption about functional categories is that they carry grammatical information but no semantic information. However, this claim is based on the premise that the only syntactically relevant semantic information carried by a head is thematic information. This assumption does not take into account the operator-like properties of functional heads such as Tense, and Negation, which triggers movement of these heads to a specifier position at LF. It is not even the case that functional heads are distinguished by not assigning a semantic role to their complement. In chapter 5, an analysis is given of the Chinese *ba* construction in which *ba* is proposed as a syntactic head that does not have any thematic role to assign. Under standard definitions it is therefore not a lexical head. It does however carry semantic information; it assigns roles from a separate semantic hierarchy, namely Grimshaw's aspectual hierarchy (Grimshaw 1990). Given this analysis of *ba*, and the operator status of Tense etc., the assumption that functional heads do not carry semantic information does not hold, but reduces to the claim that functional heads do not have thematic grids, and so do not display predicate-argument properties.

While functional projections clearly have been proven very useful in the analysis of a whole range of otherwise recalcitrant data, many of the mechanisms assumed in the grammar must now be redefined to take into account all this extra structure. For example, since Abney's work (Abney 1987) showing that nominal arguments are more fruitfully analysed as projections of a determiner phrase with an NP complement, the notion of theta assignment must be re-examined. The Theta Criterion cannot simply be redefined in terms of DP, since, without any further clarification of the relationship between functional categories and their complements, this would mean that the theta role would be assigned to only the determiner, whereas what is really required is that

the theta role be shared between determiner and noun phrase complement. This requirement throws up problems both in the formulation of the Theta Criterion and in the specification of the relationship between functional category and lexical complement. Similarly, should Case assignment be to the Determiner phrase or to the NP or shared between them? How should Case assignment be specified to ensure the correct result? How is the relation between DP and NP specified if anything other than simple Case assignment by V^0 to D^0 is adopted as the correct solution? Selection also must be redefined to ensure that a verb can select for semantic properties of its nominal complement, and not simply for properties of the head of its immediate complement, ie. D^0 .

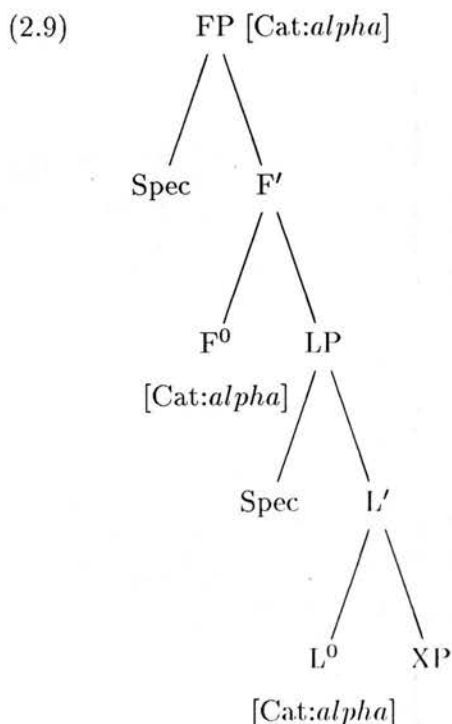
The extra structure made available by the projection of so many functional categories has also thrown into confusion previously clearly defined (extensionally at least) notions such as A-position and A-bar position, and notions of locality. The concept of head government, which was devised with lexical categories in mind, also becomes problematic with the increase in the number of (non-lexical) heads. Ideas about lexical specification have to be re-examined since the types of lexical information carried by functional heads differ from the lexical information carried by a lexical head. It is commonly assumed that each element in the lexicon is specified for all and only the phonetic, semantic and syntactic properties that are idiosyncratic to it. One such property that is taken to be idiosyncratic to each lexical element is the selectional features. Selectional features number the complements of a lexical head and identify the syntactic and semantic properties of each complement. In most analyses involving functional heads, the functional head is also assumed to carry selectional features, but here the notion of selection is clearly quite far removed from the notion just discussed. In the case of functional heads, selection is not idiosyncratic to the individual morphemes appearing under the category label, but a feature of the category itself, so for example the functional category D^0 (Determiner) always selects NP as its complement. Hence discussions abound in the literature of, for example, whether Tense selects Agr, or Agr selects Tense. In other words, selection is being used to specify morpheme orderings rather than to give any idiosyncratic information about individual morphemes. Not only does this imply a different concept of selection, it is not even clear that selection is the appropriate mechanism for the job. The kind of dependency relation captured by selection is one in which the complement is dependent on the head. However, in the

case of functional categories, the dependency relation to be captured is the reverse, the head is dependent on the complement. So for example, Zanuttini 1990 claims to capture the dependency of negation on tense, by an analysis in which the functional head Neg^0 selects TenseP as its complement.

These problems mostly stem from the multi-headed structure assigned to constituents. This is explicitly addressed in the theory of Extended Projection which is outlined in some detail in the next section.

2.3.2 The theory of Extended Projection

Grimshaw 1991a outlines a theory which is intended to explain why certain configurations of functional and lexical heads seem to be permissible in natural languages, whereas certain others are not. The basic claim of the theory is that a lexical head is dominated by a series of functional heads to form an *extended projection*. The theory restricts extended projections to be well-formed only if the lexical and functional heads within the extended projection are featurally compatible, i. e. if the major category feature $[\pm N]$ is shared across the extended projection. If, for example, Infl is assumed to be a verbal, but not a nominal category, then this explains why structures with Infl dominating NP are unattested, since it would involve a verbal functional head dominating a nominal lexical head. A similar argument is made for the non-occurrence of D^0 dominating VP. The theory thus distinguishes *perfect projections* which are maximal X-bar projections of a syntactic head, and multi-headed *extended projections* which involve a single lexical head dominated by a number of functional projections of the same major category feature:

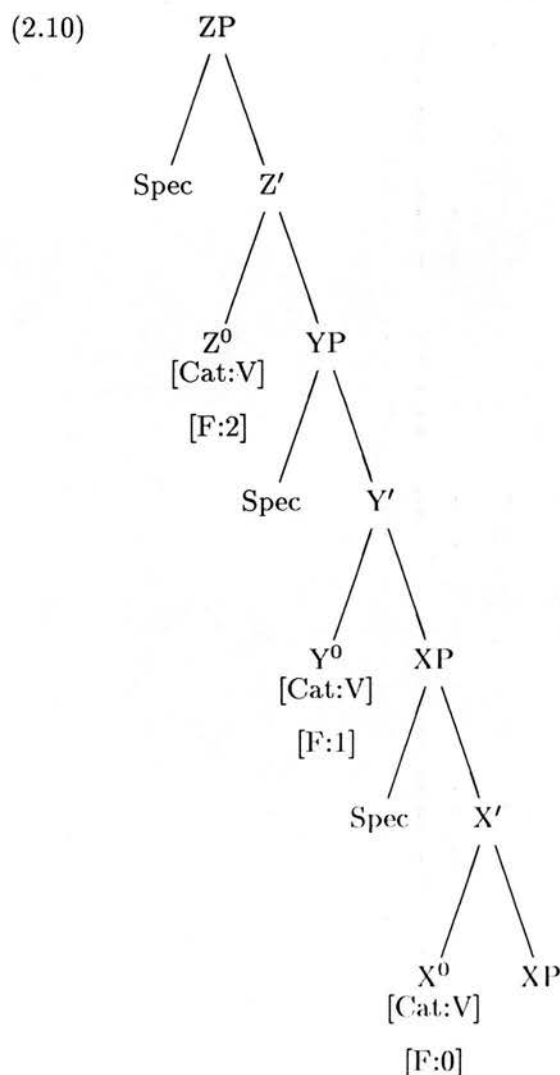


Thus in this structure, the local projections of L^0 and F^0 are perfect projections, and the whole structure forms an extended projection. The value of the category feature is shared in the whole structure. Note that this means that it need not be lexically specified on both the heads.

A second feature of this theory is that functional heads in this system do not *select* their complement. Rather, a functional head is a projection of its “complement” in the same way that V' is a projection of V^0 within X-bar theory. In other words, it is licensed by virtue of the fact that it dominates and shares categorial features with its “complement”. Conversely, a functional head is not selected for. What is selected is the major category feature of the extended projection. A consequence of this is that functional heads are only licensed in combination with a lexical head, or a series of functional heads dominating a lexical head. Since functional heads thus do not directly participate in selection, the question arises as to how a series of functional heads is appropriately ordered. The ordering of functional heads is given by a system of *f-levels*, by analogy with X-bar levels. Thus lexical heads are specified as $[F0]$ and functional heads have an *f-value* greater than or equal to one. The *f-value* of a head (lexical or functional) is a lexical feature of that head. The definition of a perfect projection then requires that the *f-value* of the head be shared across the perfect projection, while the

definition of an extended projection requires that each perfect projection in an extended projection have a higher f-value than its daughter perfect projection within the extended projection.

Under this system, the standard VP-IP-CP projection is thus represented as the following verbal extended projection:



The same structure with the Cat feature specified as N would be the structure assigned to the NP-DP-PP projection³

³For discussion of P⁰ as a functional category see Grimshaw 1991a and van Riemsdijk 1990

This notion of an extended projection as a feature sharing domain solves many of the problems discussed above, by enabling a redefinition of the domain of any operation and a reinterpretation of the notion of locality, in terms of either perfect projections or extended projections. Thus, for example, in the selection of a DP complement by a verb, since under Extended Projection both D^0 and N^0 are heads of DP, their properties are projected to the DP and can be selected for by the verb. The Theta Criterion is also redefined in terms of extended projections ensuring that the whole nominal projection is assigned a theta role (Grimshaw 1991a:9):

(2.11) **Generalised Theta Criterion (GTC)**

Every maximal projection must either

- i. receive a role or
- ii. be part of an extended projection that receives a role

Other “local” phenomena such as agreement can be redefined as occurring within an extended projection.

The problem of encoding the complement of a functional head, however, is only partially solved by this approach. The functional head projects its own features and those of its complement. Crucially, it does not select, thus avoiding the problems of using selection discussed above. This captures more appropriately the dependencies between functional heads and their complements. The ordering of functional heads is given by the system of *f-levels*, described above. The definition of extended projection requires that the *f-value* of a functional head be greater than that of its complement but by at most one. Grimshaw claims that this captures the fact that the complement of a functional head is not simply an accidental property of the individual head. However the specification of *f-levels* is unsatisfactory for a number of reasons. Firstly, apart from the distinction between $[F0]$ categories and other levels, the notion of *f-level* does not have any substance; the specification of *f-level* is a purely descriptive means of annotating the order of functional categories. There is nothing inherent in any functional head that gives its *f-value*. Furthermore the notion of *f-level* is too absolute, in that it is fixed in the lexicon and does not reflect the relational nature of functional heads. This does not allow for optional functional heads. It is also problematic for systems such as that of Adger and Rhys forthcoming which allow for word formation both pre-syntactically

and within the syntax. Grimshaw speculates that a more detailed understanding of the semantic import of different functional heads might provide an explanation for the ordering in the functional projection. This is based on the observation that in the verbal projection, there are semantic correlates for CP and IP, namely proposition and event. In the same vein, Cann 1993 observes that NP is semantically a property, and DP an individual, hence head movement from NP to DP is akin to type raising in the sense of Keenan and Faltz 1985.

In the rest of this thesis the central hypothesis of extended projection, as developed in Grimshaw 1991a is adopted, leaving as an open question how the order of functional categories is specified.

2.3.3 The morphology-syntax interface

One of the consequences of the expansion of the number of functional heads to include derivational morphemes is the proposal that the rules of the word formation component might be entirely reduced to independently motivated syntactic principles. This school of thought originates with the proposal in Travis 1984 that lexical heads are subject to Move- α as well as phrasal elements. Baker 1988 proposes that morphemes as well as words may project syntactically and that these morphemes are lexical heads. Given this, they are subject to head-movement, as are all other lexical heads. It is this head movement that forms words. If head movement is merely a form of Move- α , then it should be subject to the same constraints (essentially the ECP and subjacency). In fact head movement seems to be more constrained than phrasal movement and this has lead to the proposal of the Head Movement Constraint (HMC) which constrains heads to move to the nearest c-commanding head. There have been a number of attempts to reduce the HMC to the ECP which are only partially successful. This reduction is methodologically necessary, if it is to be the case that word formation is constrained entirely by independently motivated syntactic principles (the HMC is only motivated by the word formation data, while the ECP is motivated by a range of purely syntactic data). Baker 1988 is a good example of this type of methodology, in that he attempts to explain the constraints on word formation in complex constructions such as Noun Incorporation via syntactic principles.

Borer (1991) also adopts the functional projection approach to syntax, but claims that the word formation component is still autonomous from the syntax and merely requires adjacency of morphemes. She advances a number of arguments that head-to-head movement is not a word formation rule: specifically, head movement results in an adjunction structure, yet is presumed to be triggered by morphological subcategorisation. Since adjunction structures are not usually thought of as the type of configuration where subcategorisation satisfaction takes place, it seems odd to argue that this is what is happening. Furthermore, subcategorisation is usually assumed to be satisfied at D-structure, whereas in head movement configurations it must be satisfied at S-structure. Borer argues that rather than head to head movement being a word formation process, it merely provides a configuration of adjacency to which the rules of an independent morphological component can apply. Since this component is independent of the syntax, its rules may apply to create words that are fully formed by D-structure. This flexibility is exploited in the account of gerunds outlined in chapter 4. Note that, in principle, these options are available for all morphological combinations and this predicts massive morpho-syntactic ambiguity in natural language. The assumption is that generally such ambiguities do not arise because independent factors will rule out one or other of the options. This approach is motivated by data on construct nominals, derived nominals and causative/inchoative alternations.

2.3.4 Parametric variation and language acquisition

Within the principles-and-parameters approach, one problem until recently has been to establish a satisfactory definition of what might constitute a parameter. The projection of functional categories has led to a notion of parametric variation which is both more substantive and more restrictive. The proposal (Chomsky 1992; Ouhalla 1990) is that the parameters of UG do not relate to the grammatical principles in any of the modules of the grammar, but are located entirely in the lexicon. Under the assumption that substantive elements are drawn from an invariant universal vocabulary (Chomsky 1988b), it follows that the locus of parametric variation will be the set of functional heads (Chomsky 1988a; Chomsky 1992). This proposal is developed in detail in Ouhalla 1991, in which parametric variation is not only restricted to affect only a limited set of functional categories, but also to affect only one or a combination of properties drawn

from a limited set of lexical properties.

This approach to variation reduces the problem of language acquisition to the acquisition of the lexical idiosyncrasies of the language. Support for this view is to be found in the literature on language acquisition (Ouhalla 1990). In Chomsky's view, the motivation for such a reduction is essentially theoretical, in that it entails a restriction in the mechanisms for variation and hence a restriction in the definition of the set of possible natural languages. However, since under Chomsky's approach there is no constraint on the abstractness of the lexical items posited, the empirical consequences of such a restriction are not clear. Given one other constraint, however, this lexicalist view of language acquisition also reduces problems of learnability and leads to a more concrete notion of what constitutes positive evidence for parametric variation. This is a constraint that prohibits the postulation of phonologically empty syntactic heads. The PF-licensing Principle (PFLP), proposed in a series of papers by Mary Tait and Ronnie Cann (Cann 1993; Cann and Tait 1991; Tait and Cann 1990a; Tait and Cann 1990b; Tait 1991) is such a constraint. This is outlined in the next section.

Learnability and the PFLP

The PFLP is the requirement that all syntactic projections receive a PF interpretation. This is both a constraint on acquisition, and a constraint on individual s-structure representations. As a constraint on acquisition, it solves problems of learnability by limiting the categories that the child could postulate for the language to those that have an independent and identifiable PF realisation. For example, in a language like Italian tense and agreement are identifiable as independent morphemes, whereas in English morphological syncretism reduces these two features to a single morpheme. Thus, given the PFLP, a child acquiring Italian will postulate two independent functional projections Tns and Agr, but the child acquiring English postulates only the single category [Tns,Agr]. As mentioned above, this provides a solution to the problem of ascertaining the set of functional categories for an individual language. The functional categories of a language are all and only the functional categories that are PF-licensed in that language, since they are the only categories for which the child acquiring the language has positive evidence.

The PFLP also acts as a constraint on the heads assumed to be projected in the

representation of an actual sentence in a language. At this level, it requires that all the syntactic heads projected in an individual S-structure representation be PF-licensed in that S-structure representation. This is an important restriction in the grammar because it prohibits the explanation of syntactic phenomena on the basis of empty heads motivated by their appearance elsewhere in the language or in other languages.

2.4 The lexical-functional distinction in Chinese

Turning now to Chinese how is this lexical-functional distinction reflected? Looking first at lexical categories, in the early days of generative grammar, these were defined to be N, V, A, and P. It was then proposed that these four categories were not primary but could be derived from the two major category features $[\pm N]$ and $[\pm V]$ (Chomsky 1970). An alternative, proposed in Grimshaw 1990 (adopting insights from Jackendoff 1977) argues that major category information can be minimally decomposed into the features $[\pm S]$ and $[\pm N]$, where $[S]$ serves to distinguish heads with a thematic grid, while $[N]$ distinguishes nouns from verbs⁴. Given that categorial information is syntactic, this reduction in the categorial information of lexical heads, is in keeping with the idea that syntactic information is carried by the functional categories⁵. It is also highly appropriate for the description of the behaviour of lexical categories in Chinese, which do not readily fall into the set of four major categories (McCawley 1992; Ross 1991; Tai 1982). For example, in Chinese the P/V distinction is blurred, since most prepositions can also be used as matrix verbs with an independent thematic grid.

- (2.12) a. wo gei ni mai yiben shu.
 I gei you buy one book
 'I'll buy you a book.'
- b. wo gei ni yiben shu.
 I gei you one book
 'I'll give you a book.'

⁴In the discussion of category neutralisation (p.23f), Grimshaw argues that this always involves N/V neutralisation. This suggests that the N/V distinction is the result of a single feature which is unspecified when categorial information appears to be neutralised

⁵Adger and Rhys 1991 even suggest that lexical roots do not carry any specification at all for major category feature

Similarly adjectives in Chinese are not clearly distinguished from verbs in either their predicative or their attributive use⁶.

- (2.13) a. ta hen xihuan ni.
 she very like you
 ‘She likes you very much.’
 b. ta hen mei
 she very beautiful
 ‘She’s very beautiful.’
- (2.14) a. *yige hen xihuan ni ren
 one very like you person
 b. *yige hen mei ren
 one very beautiful person
- (2.15) a. yige hen xihuan ni de ren
 one very like you *de* person
 ‘a person who very much likes you’
 b. yige hen mei de ren
 one very beautiful *de* person
 ‘a very beautiful person’

This leaves the N/V distinction. Note that, in general, this distinction is manifest solely in the distribution of a head, not in its form. Where an item can head either a verbal or a nominal projection, there is no nominalising morphology to reflect the category of the projection. Thus, in the following example, the category of the whole projection is reflected in the way that the arguments of the lexical head *pohuai* (‘destroy’) are licensed:

- (2.16) a. chengshi de pohuai
 city *de* destruction
 ‘the destruction of the city’
 b. tamen pohuai le chengshi.
 they destroy PERF city
 ‘They destroyed the city.’

⁶Note that I am not claiming that the adjective *is* a verb

The data here supports the idea that the syntactic category of an extended projection is a function of the functional heads of the projection. This brings us to the nature of the functional categories of Chinese.

Much of the literature on functional categories has concentrated on the projection of inflectional morphemes, but Chinese does not show any form of inflection either in the verbal projection or in the nominal projection. Nonetheless, if the functional lexicon is the sole locus of parametric variation, then we would still expect Chinese to display a wide range of functional heads, via which the idiosyncracies of Chinese sentence structure might be explained. Universally, functional categories include purely inflectional categories such as agreement, as well as operator like categories such as Negation and Tense which may or may not be inflectional depending on the language type, and closed class items such as functional “prepositions” i. e. prepositions that do not independently assign a thematic role. Since Chinese has no inflection, the functional categories of Chinese are expected to fall into the latter two types. In other words, Chinese is expected to project a set of nominal and verbal operators, and a set of functional prepositions, that is prepositions that do not independently assign thematic roles, but play a role in the licensing of arguments. The next section looks at the operator type of functional category in the verbal projection, focusing in particular on the syntactic characterisation of negation. The remaining chapters then investigate the second type of functional category proposed for Chinese, namely the functional preposition, and argue that the semi-free word order of Chinese is a consequence of the licensing of arguments via these preposition-like functional heads.

2.4.1 Negation in Chinese

Chinese has two forms of negative particle to express sentential negation: *bu* and *mei*. In the current context, what we are interested in is the syntactic characterisation of these particles: whether they have the same or different syntactic characterisation, whether either or both of these particles head a negative projection, and whether Chinese even has a negative projection. Sentential negation is argued to be expressed either by a head or by an adverbial in both the Germanic and the Romance language families (Haegeman and Zanuttini 1991; Pollock 1989; Zanuttini 1990; Zanuttini 1991). These two different types of negation are represented by the familiar French negative particles *ne* and *pas*,

which generally co-occur to express one instance of sentential negation⁷. However, as Zanuttini has shown, the majority of the Romance languages manifest only one of these negation markers. Given these crosslinguistic generalisations, we might expect the two negation markers in Chinese to be instances of one or other of the two types of negation marker. The data does not however support this hypothesis. Instead, although one of the Chinese negation markers shows properties of a specifier, both the negative markers provide evidence for NegP in Chinese. This is in stark contrast with the two negative markers of Romance, where crucially the negative specifier is not generated under NegP.

Evidence for NegP in Chinese

The first observation to make about negation in Chinese is that the negative marker can only appear within a verbal extended projection. Furthermore, its position within the verbal projection is fixed; it appears between the subject and any other verbal head such as the aspect markers, auxiliary, and main verbs:

- (2.17) a. *wo mei xiang qu.*
 I *mei* want go
 'I didn't want to go.'

- b. **wo xiang mei qu.*
 I want *mei* go

- (2.18) a. *wo bu xiang qu.*
 I *bu* want go
 'I don't want to go.'

- b. **wo xiang bu qu.*
 I want *bu* go

Nominal expressions cannot be directly negated. The only way that negation can have scope over a nominal argument is to use a clefting construction so that negation is licensed via the clefting copula:

- (2.19) **ta xie le bu sanben shu dan wuben shu.*
 she write *le* not three books but five books

⁷This is the phenomenon of Negative Concord, discussed in Haegeman and Zanuttini 1991 and in a number of talks by Liliane Haegeman.

- (2.20) ta xie le bu shi sanben shu shi wuben.
 she write *le* not is three books is five
 'She wrote not three books but five.'

In other words, the clefting construction embeds the nominal expression to be negated within a verbal projection. This suggests an independent NegP projection that is functional since it does not assign thematic roles as discussed above, and verbal since it is not licensed in a nominal projection.

Further evidence that we are dealing with an independent functional projection is that the direct iteration of negation is not possible:

- (2.21) *wo bu bu gaoxing.
 I bu bu happy

- (2.22) *wo mei mei xiang qu.
 I mei mei want go

Double negation generally requires the projection of the copula to license the first instance of negation:

- (2.23) wo bu shi bu gaoxing.
 I bu be bu happy
 'I'm not not happy.'

Whether this is achieved via the selection features of the functional head, or via the requirement that *f*-levels increase, it is a generally assumed property of functional projections that they are non-iterable. The non-iterability of *mei* and *bu* is thus readily captured by an analysis in terms of NegP.

If *mei* and *bu* are analysed as heads of the functional projection NegP that is specified to carry the major category feature [+V], these properties of negation fall out naturally under the assumptions of Extended Projection. The fact that it only occurs within a verbal projection follows from the constraint on extended projections that they must be featurally compatible. The non-iterability and the fixed position are a general property of functional projections. The negative particles thus provide evidence for a NegP in Chinese. However, closer inspection of the distinctions between *mei* and *bu* and their interaction with other functional projections and with movement, brings to light a few problems with this unified view of *bu* and *mei* as heads of NegP.

Distinguishing *mei* and *bu*

The core distinctions between *mei* and *bu* are reflected in their interaction with aspect. The particle *mei* is restricted largely to events in the past:

(2.24) *wo mei you qu.*

I *mei* have go
'I didn't go.'

(2.25) *wo bu qu.*

I *bu* go
'I'm not going.'

Note this is not simply a tense restriction, since *mei* is never licensed to appear with stative verbs, which are still negated by *bu* when they refer to the past:

(2.26) **wo neishihou mei gaoxing.*

I then *mei* happy

(2.27) *wo neishihou bu gaoxing.*

I then *bu* happy
'I wasn't happy then.'

Nor is it simply a case of lexical selection for a particular negation marker by individual verbs, or even verb categories. This is evidenced by the following data in which a stative verb is marked with an inchoative marker. This has the effect of changing its aspectual status from a state to an event. In these contexts, verbs which are lexically stative can be negated by *mei*:

(2.28) *ta mei you gao le duoshao.*

she *mei* have tall INCH how much
'She hasn't got much taller.'

This indicates that the two negation markers carry aspectual features, and these aspectual features must agree in the extended verbal projection. Moreover, *mei* and *bu* also show differences in their co-occurrence relationships with the range of potential aspectual heads. Simplifying somewhat, Chinese has two aspectual auxiliaries: *you*, which is approximately a perfective, and *zai* which is a progressive. It also has a set of aspectual particles that are suffixed on to the verb: *le* (perfective/inchoative), *de* (aorist), *zhe*

(progressive). The co-occurrence relations between the various aspect markers is very complex, but a simple generalisation for the distributional relationship between the negation markers and aspect is as follows. What we find is that neither form of negation is licensed with the aspectual suffixes.

(2.29) a. *wo bu qu le beijing.

I bu go le Beijing.

b. *wo mei qu le beijing.

I mei go le Beijing.

(2.30) a. *ta bu pao de kuai.

she bu run de quick

b. *ta mei pao de kuai.

she mei run de quick

(2.31) a. *wo bu kan zhe shu.

I bu read zhe book

b. *wo mei kan zhe shu.

I mei read zhe book

In the case of the aspectual auxiliaries, on the other hand, *bu* is licensed with progressive *zai*, whereas *mei* is licensed with both the perfective *you* and the progressive *zai*. Given the usual aspectual constraints on *mei* to events in the past, the co-occurrence of *mei* and progressive *zai* with a present tense interpretation is not expected.

(2.32) a. wo bu zai kan shu.

I bu zai read book
'She's not reading.'

b. wo mei zai kan shu.

I mei zai read book
'She's not reading.'

(2.33) a. *wo bu you kan naben shu.

I bu have read that book

b. wo mei you kan naben shu.

I mei have read that book
'She hasn't read that book.'

Exactly how these distributional differences should be explained is addressed below. The co-occurrence of *mei* and *zai* indicates that the differences are not simply an effect of the different aspectual interpretations of the two negative particles. It is unlikely therefore that they can be attributed solely to aspectual agreement. This suggests that there are syntactic differences between *mei* and *bu*.

The discussion above looks at co-occurrence evidence that *mei* and *bu* are generated in different structural positions. The following movement data points to the same conclusion. This data shows the interaction of the two negative particles with topicalisation of the sentential modifier *tiantian* ('daily')⁸.

- (2.34) a. wo mei you tiantian jian ta.
 I *mei* have daily see her.
 'I didn't see her daily.'
- b. wo bu tiantian jian ta.
 I *bu* daily see her.
 'I don't see her daily.'
- (2.35) a. *tiantian wo dou mei you jian ta.
 daily I all *mei* have see her.
- b. tiantian wo dou bu jian ta.
 daily I all *bu* see her.
 'Everyday I don't see her.'

The data shows that topicalisation of the operator is blocked by *mei* but not by *bu*. Since topicalisation is an instance of A-bar movement this indicates that *mei*, but not *bu*, qualifies as a typical potential A-bar binder. As such, it acts as a minimality barrier to extraction of the modifier which is then unable to antecedent govern its trace yielding an ECP violation (Rizzi 1990). On the assumption that specifiers but not heads are operators, this shows that *mei* but not *bu* should be analysed as a specifier⁹.

⁸The stranded floating quantifier *dou* ('all') in these examples can be taken as evidence of the chain formed by topicalisation (Chiu 1991). What is not clear is why the adverb *tiantian* is not licensed in the position of *dou* at S-structure with either negation marker:

- (i) *wo tiantian mei you jian ta.
 I daily *mei* have see her
- (ii) *wo tiantian bu jian ta.
 I daily *bu* see her

⁹Note that *mei* does not block extraction of an ordinary argument, as in:

The evidence now points to contradictory conclusions for the status of negation in Chinese. From the distributional perspective both particles provide evidence for the functional projection NegP. Co-occurrence with aspect, on the other hand, indicates that the two particles have different structural properties. This is backed up by evidence from extraction which argues for an analysis of *mei* as a specifier. The following section discusses an approach to the category of a projection under which categorial information can in certain contexts be uniquely determined by a D-structure specifier (Cann 1993). Under this approach, the projection NegP can still be licensed by *mei* even though it is a specifier.

The distribution of information in a projection

A central assumption of X-bar theory is that the syntactic category of a phrasal constituent is projected directly from its head, in other words it is not affected by the dependents of the head. An alternative approach, proposed in Cann 1993, formalises the idea that D-structure specifiers also contribute to the categorial information of the projection. Note this refers specifically to D-structure specifiers, and not to categories that are in a specifier position as a consequence of movement. This captures the idea that D-structure specifiers “somehow complete or change the categorial nature of the structure in which they appear” (p. 16).

Cann’s proposal centres on the following two claims about the head-specifier relation (p. 15f.):

(2.36) If α is the specifier of β , then α and β must be coindexed.

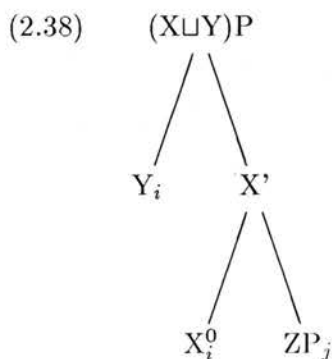
(2.37) If α and β are coindexed at D-structure, then α and β must be c-compatible.

The notion of c-compatibility (categorial compatibility) is defined in terms of category unification. In fact, Cann goes one step further to claim that the category features of a head and its D-structure specifier not only must be unifiable, but actually are unified

-
- (i) neige ren wo mei you kanjian.
 that person I *mei* have see
 ‘That person I didn’t see.’

This suggests that the notions of A and A-bar chains and their potential minimality barriers in Chinese have more to do with the status of the head as an argument or an operator rather than simply the landing site. Given the problems with movement constructions in Chinese, this is left as a question for future research.

to give the category value of the whole projection as in the following schema (where \sqcup is the symbol for unification)¹⁰:



The basic insight of this proposal is that in certain instances categorial information is distributed between a head and its specifier. In a system in which category combination is a function of the selectional properties of a head, this will yield projections in which the specifier adds to the information of the head. Under a system such as Extended Projection, where functional categories do not in any sense select a complement, we might also expect functional projections in which only the specifier position is filled at D-structure, and so the category of the projection is determined uniquely by the specifier. This expectation is realised by NegP in Chinese, which can now be analysed as being projected either from the head *bu*, or from an empty head coindexed with the specifier *mei*. This resolves the apparent contradiction between the specifier properties of *mei* and the evidence that its distribution is directly determined by NegP.

Does this analysis of the negative particles shed any light on their interaction with the aspectual particles?

Negation in the verbal projection

So far, it has been established that there is a NegP in Chinese and that *bu* is generated in the head position of NegP, while *mei* is generated in its specifier position. Further investigation into the interaction of negation with other functional projections suggests that while this is the case, NegP is in some sense a defective projection, which cannot be independently projected.

¹⁰Note that this proposal is incompatible with the VP-internal subject hypothesis of Koopman and Sportiche (1989).

Firstly, note that Negation does not simply agree with the aspectual features of the projection, but can actually be the sole locus of aspectual information in the verbal projection:

- (2.39) *wo bu qu.*
 I *bu* go.
 ‘I’m not going.’

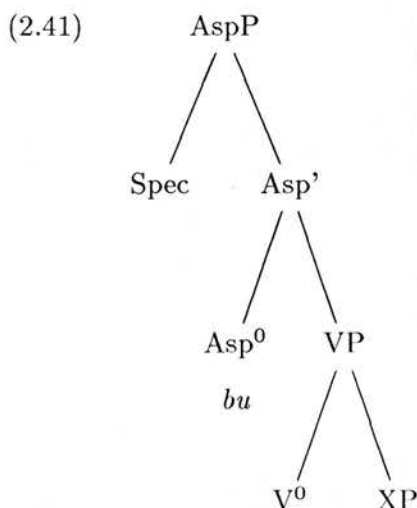
- (2.40) *wo mei qu.*
 I *mei* go.
 ‘I didn’t go.’

This might be interpreted as evidence that the negation markers are actually themselves aspectual particles¹¹. Such an approach certainly explains the exclusively verbal nature of negation. It also allows us to explain some of the co-occurrence relations between negation and aspect. In particular, under such an analysis the non-co-occurrence of the negative head *bu* with the aspectual markers falls out as a consequence of category membership:

¹¹Crosslinguistic support for generating negation in AspP is found in an analysis of negation and case-marking in Finnish in Nelson 1992:

- (i) *mina e-n osta kirja-a*
 I-nom neg-agr BUY(stem)BOOK-part
 ‘I’m not buying the book.’
- (ii) *e-n osta-nut kirja-a*
 neg-agrBUY-pcp BOOK-part
 ‘I didn’t buy the book.’

Negation is analysed as an auxiliary verb based on the fact that it agrees with the subject. Objects of negated verbs in Finnish are always in the partitive. Nelson’s claim is that negation is generated under Asp and assigns partitive case as a feature of [-COMPLETENESS].



Given this structure, *bu* is an aspectual head that is marked for negative polarity but competes with the other potential heads of AspP for the same structural position. Under this analysis *mei* would be generated as the specifier of AspP, with the cooccurrence restrictions between *mei* and the aspectual particles being a consequence of failure of Spec-head agreement.

This merging of Aspect and Negation is similar to the claim that Tense and Agreement, or Subordination and Mood (Bhatt and Yoon 1991) are syncretised in English. Grimshaw 1991b approaches this problem in terms of the conflation of two potentially distinct functional heads in the lexicon. In any individual language, two categories of adjacent *f*-levels might be consistently conflated, as in the the examples of syncretism just given. Alternatively, a particular morpheme in a language might represent the conflation of two (adjacent) *f*-levels that are otherwise kept distinct in the language. An example of this is the pronoun in English, which can be analysed as the conflation of D⁰ and N⁰. The case of negation, however, does not quite match either of these situations. Firstly, negation is optional, so conflation of the two *f*-levels would entail the view that the functional category involved was not NegP, but AffP (in the sense of Laka 1990), and that all the aspect markers carry a polarity feature¹². Secondly, where the negative particle involved is the specifier *mei*, the information that *mei* is a specifier must be retained after conflation with aspect.

The problem is not simply one of how negation is conflated with aspect however.

¹²This may turn out to be an independently required property of aspect.

Negation does not always carry an aspectual interpretation. In the following context negation has not an aspectual interpretation, but a modal interpretation similar to *won't* in English¹³:

- (2.42) ruguo ni bu pao de kuai, ni jiu de-bu-dao jiangpin.
 if you *bu* run *de* quick, you then can't-win the prize.
 'If you won't run quickly then you can't win the prize.'

Note that with this interpretation, the co-occurrence of the negative particle with the aspectual particle *de* is licensed, whereas when negation itself has an aspectual interpretation co-occurrence is not licensed. This suggests that negation here is conflated not with Asp, but with a modal projection.

There is also diachronic evidence for conflation of negation with modal heads in the following forms which are discussed in Huang 1988 as the result of fusion of *bu* + V^0 :

- (2.43) bu + yao (will) = bie bie lai! don't come!
 bu + yong (need) = beng beng lai le You needn't come now!

Huang also proposes *mei you* as fusion of *bu* and *you*, however we have already shown that *mei* has specifier properties not displayed by *bu*, so it seems implausible that *mei* is simply an allomorph of *bu*¹⁴.

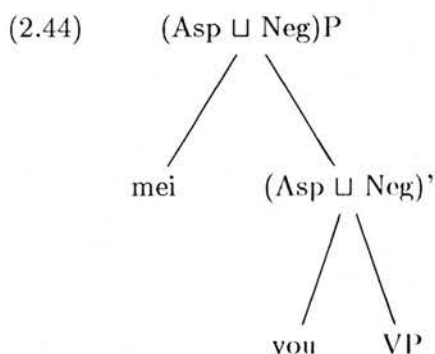
The interaction of negation with other verbal projections is summarised as follows:

- negation can carry either an aspectual interpretation or a modal interpretation
- conflation of negation with aspect retains structural information
- lexical items reflect syncretism of negation and modal verbs

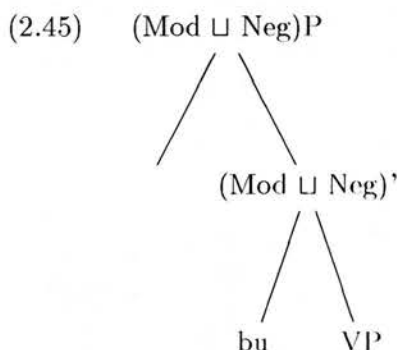
What this suggests is that negation has an independent lexical representation in Chinese but can be conflated with either aspect or with modals. An important property of the conflation proposed here is that it must be conflation of the projection and not simply of morphemes or features, since conflation has to retain structural information. This gives an explanation for how it is that the negative specifier *mei* occurs with aspectual heads *you* and *zai*, as in the following structure:

¹³These examples are cited in Huang 1988 but are originally due to Y.-H. Audrey Li.

¹⁴Huang suggests that *mei* is an allomorph of *bu* that appears whenever it precedes *you*. He does not address how it is that *you* is optional with *mei*.



Where the projections concerned are projected from heads, then conflation of projections has the same consequences as conflation of either f -levels or of individual morphemes, for example the following structure represents modal *bu*:



Moreover, this property of the conflation operation interacts with Cann's proposal that the categorial information of a projection is distributed within a projection, explaining how a negative specifier acquires aspectual features from an aspectual head. Assuming that individual morphemes project according to the constraints of X-bar theory before lexical insertion, then this notion of conflation can be defined as a binary operation on phrase markers prior to lexical insertion.

2.5 Conclusion

This chapter has introduced the notion of functional projections, and discussed some of the theoretical questions that arise out of such a notion. The constraints on functional projections that are assumed in the rest of this thesis were introduced and motivated. Lastly, an analysis of negation in Chinese was outlined that exploits this notion of functional projections, and brings up some further questions about the nature of syntactic

categories and projection. The remainder of this thesis can be viewed as an investigation into the hypothesis that the grammatical work in an individual language is done by the functional heads of that language and that parametric variation is therefore located solely in the lexical specification of those functional heads.

Chapter 3

Case and Licensing in Chinese

3.1 Introduction

It was suggested in the previous chapter that the functional categories of Chinese should include a set of functional prepositions, that is, prepositions that do not independently assign a thematic role. It was also suggested that the role of these prepositions is to license the satellites of a lexical head, and hence affect the surface position of the satellites. Given these claims, a plausible hypothesis would be that the functional prepositions are Case assigners, licensing the satellites by abstract Case. This chapter investigates the relevance of the notion of abstract Case to Chinese and comes to the conclusion that the notion of Case does not play a role in Chinese.

Chinese is a language that does not display any morphological case inflections even in the forms of the pronouns which are invariant. Nor is there evidence of morphological case at earlier stages of the language. It is therefore valid to ask whether Case Theory really does have a role in regulating the distribution of noun phrases in Chinese. The principal effects of Case theory are to determine the distribution of NPs via the triggering of NP movement and the licensing of overt subjects. By way of a preliminary investigation this section looks at two constructions that are potentially problematic for the application of Case Theory to Chinese. The constructions discussed in this section are the forms of the passive, and the non-gap topic. The passive is discussed as an example of a construction involving NP movement that does not readily yield to a Case theoretic analysis. The non-gap topic construction is important in a discussion of Case in Chinese since it suggests that the topic position must be an inherently Case marked

position.

3.1.1 Passives in Chinese

The most common form of the passive in spoken Chinese has the internal argument of the transitive verb appearing in the subject position, but does not show any morphological passive marking:

- (3.1) shu dou mai le.
 book all sell *lc*
 'The books are all sold.'
- (3.2) shu zuotian chuban le.
 book yesterday publish *lc*
 'The book was published yesterday.'

This form of the passive frequently appears in conjunction with the use of result particles, such as *wan* ('finish') and *hao* ('good'), which indicate completion:

- (3.3) shu dou mai-wan le.
 book all sell-finish *lc*
 'The books are all sold.'
- (3.4) shu xie-hao le.
 book write-good *lc*
 'The book has been written.'

The unmarked passive is only licensed where the patient is non-human. The alternative passive construction uses the passive marker *bei*. This appears either as a particle, immediately adjacent to the verb, or preverbally as the agent marker with the agent NP as its complement, in which case there is no requirement of adjacency to the verb on the *bei* phrase:

- (3.5) haizi bei da le.
 child PAS hit *lc*
 'The child has been hit.'
- (3.6) haizi bei mama da le.
 child PAS mother hit *lc*
 'The child has been hit by her mother.'

Under a Case analysis of passive, the passive morphology absorbs the Case feature of the verb so that it does not Case mark its complement. By Burzio's generalisation, the external theta role of the verb is therefore also suppressed. Movement of the internal argument to the subject position is thus obligatory, triggered by the Case filter.

There are a number of ways in which Chinese does not meet this basic analysis of passive. Firstly, NP movement is not obligatory. Secondly, if NP movement does occur the verb can still license an object. Thus the verb in a passive sentence appears to still Case mark its complement position.

The following set of examples illustrate that movement of the internal argument is not obligatory¹:

- (3.7) *e* zuotian chuban yiben shu le.
e yesterday publish one book *le*
 'A book was published yesterday.'
- (3.8) *e* zuotian bei da le yige haizi.
e yesterday PAS hit *le* one child.
 'A child was hit yesterday.'
- (3.9) *e* bei mama da le yige haizi.
e PAS mother hit *le* one child.
 'A child has been hit by her mother.'
- (3.10) *e* xie-hao le yiben shu.
e write-good *le* one book.
 'A book has been written.'

Note that the example in (3.7) cannot be interpreted as simply having an empty subject pronoun (*pro* or *PRO*) in the preverbal subject position, since the same example with an agent oriented adverb, such as *guyi* ('intentionally'), which should scope over the external argument of the verb, is not licensed:

- (3.11) **e* zuotian guyi-de chuban yiben shu le.
e yesterday intentionally publish one book *le*.

¹The subjects are explicitly marked as indefinite to take into account the definiteness distinction between pre- and post-verbal arguments.

If the Case absorption analysis is to be maintained, these examples would have to be analysed as involving an empty expletive in the subject position that transfers nominative Case to the postverbal subject (cf. the account of expletives in Chomsky 1986a). The following data, however, suggests very strongly that there is no Case absorption, since the passive verb still licenses an NP in the complement position.

- (3.12) ta bei ren pian le qian.
 she *bei* person cheat *le* money
 ‘She was cheated of her money by someone.’

- (3.13) ta bei tufei sha le fuqin
 she *bei* bandits kill *le* father
 ‘Her father was killed by bandits (and she was affected by it).’

One approach to these problems is to say that the Case theoretic approach to the passive construction applies vacuously in Chinese, because there is no passive morpheme in Chinese. The only potential candidate for a passive morpheme is *bei*. However, as we have seen, *bei* functions more like a preposition taking an NP complement. Furthermore *bei* is only obligatory where the interpretation of the subject is ambiguous, elsewhere there is no overt passive marking. To claim that Chinese has a passive morpheme would require positing an empty morpheme. Without a passive morpheme, Case absorption cannot take place. However this leaves open the question of how the external theta role is suppressed, since this is also assumed to be a function of the passive morpheme. Furthermore, there are languages which have overt passive morphology, but still appear to license overt object NPs. This suggests that these problematic properties of the *bei* construction cannot be reduced to the presence or absence of a passive morpheme.

One other property of the *bei* construction that does not lend itself to a Case theoretic analysis is the fact that not every transitive verb licenses a *bei* construction:

- (3.14) a. ta chi guang fan le.
 she eat empty food *le*
 ‘She ate up the food.’
 b. fan bei ta chi guang le.
 food *bei* her eat empty *le*
 ‘The food was eaten up by her.’

- (3.15) a. ta chi bao fan le.
 she eat full food *le*
 ‘She ate the food, and got full.’
- b. *fan bei ta chi bao le.
 food bei her eat empty *le*

Although in both cases the resultative compound verb is a transitive verb, only *chi guang* (‘eat empty’) licenses a *bei* construction². The distinguishing feature here is that the second verb in the compound must be predicated of the object and not of the subject. Hence where the active compound is ambiguous, the *bei* construction will not be:

- (3.16) a. wo qi lei le neipi ma.
 I ride tired *le* that horse
 Either: ‘I rode that horse tired.’
 or: ‘I rode myself tired on that horse.’
- b. neipi ma bei wo qi lei le.
 that horse *bei* I ride tired *le*
 Only: ‘That horse was ridden tired by me.’

One final way in which the Chinese *bei* construction differs from passive constructions in western languages is in the negative interpretation involved. The *bei* construction is often referred to as a passive of adverse affect since the subject must be interpreted as being adversely affected by the event. It is relevant to ask at what level this restriction operates; is it a thematic property, or a purely semantic property, and does it interact with the syntax of the construction. These questions are not addressed here, but it should be noted that they have some overlap with the restrictions on the *ba* construction which are analysed in detail in Chapter 5.

3.1.2 Non-gap topic constructions

Non-gap topic constructions are constructions that have an overt topic that is not related in any way to an individual argument position in the sentence. In the following example (from Li and Thompson 1981), the topic *neichang huo* (‘that fire’) does not realise an

²This data closely parallels data involving the *ba* construction discussed in detail in Chapter 5.

argument of the verb *lai* ('come'), nor does it bear any obvious grammatical relationship to the single argument of the verb *xiaofangdui* ('fire brigade'):

- (3.17) *neichang huo, duo kui xiaofangdui lai de zao.*
 that fire, many thanks fire brigade come DE early.
 'As for that fire it's a good thing that the fire brigade came early.'

Non-gap topics pose a problem for the Case filter, because it is not clear how they are Case marked. Since the topic bears no grammatical relationship to any argument or argument position in the clause, it cannot be derived by movement from a Case marked position in the clause. It therefore must be assumed to be base generated in situ, and also Case marked in situ. Case is assigned either under government from a Case assigning head or under Spec head agreement. The problem with the non-gap topic is that it does not clearly fall under either one of these relations with a head. The generally accepted solution (Cole 1987; Huang 1982b; Huang 1984) is to assume that Infl in Chinese is inherently a proper governor. Huang suggests that this is because the lexical items appearing under Infl are independent verbs, and Infl is therefore lexical in Chinese. As a lexical head, Infl is a potential governor. The topic is taken to be generated in an IP adjoined position, and it is assumed that Infl governs this position. It is then assumed that if the topic is properly governed it is also Case marked:

the topic must be Case marked in its own position. The assumption that that position is properly governed also means that it can be directly Case marked. (Huang 1984)

There are a number of problems with this solution. In the first place, the notion of proper government is not standardly the relation under which Case is assigned. Proper government is a derived notion involved in the licensing of empty categories. It is defined in terms of antecedent government, or theta-government (ie. direct theta marking by a sister lexical head). Case, on the other hand, is assigned under government by a Case assigning head. Is it possible then that Infl Case marks the topic in this position? Under the assumption that Infl is lexical and a Case marker, this reduces to the question of whether Infl governs the topic. Government in relation to adjunction structures is discussed in Chomsky 1986b. If the defective character of IP as a blocking category

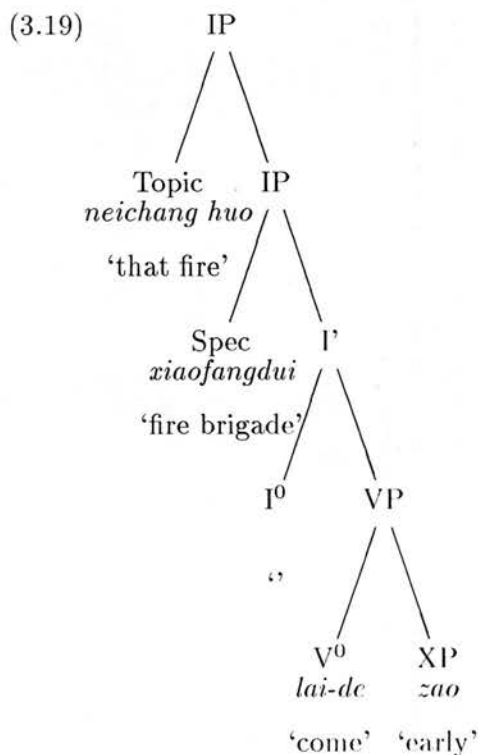
is also true of IP in Chinese,³ then IP will govern the adjoined topic under either the definition of government in terms of domination or the definition in terms of exclusion:

(3.18) α governs β iff α m-commands β and

exclusion: there is no γ , γ is a barrier for β , such that γ excludes α .

domination: every barrier for β dominates α .

Infl thus governs the adjoined position. In other words, Huang and Cole are assuming that the basic non-gap topic structure is the following, in which both the topic and the subject fall under IP and are governed by I⁰:



However some problems with this approach remain. Infl is also assumed to Case mark the subject in its specifier position. This means that the Case adjacency restriction must be abandoned, since the subject appears between Infl and the topic position. It also involves the assumption that profligate Case assignment is licensed. In other words, the same head is assumed to be licensing two positions; the subject in its specifier position, and the topic in an adjunction position.

³This is a non-obvious assumption since Infl is assumed to be lexical.

Not all topics are non-gap topics, so the next problem is that of ensuring that a topic derived by *wh*-movement is not assigned Case by Infl, since this would violate the Chain Uniqueness Principle, which requires that only one link of a chain receive Case. The landing site for topicalisation is usually assumed to be the specifier position of CP. If this can be shown also to be the case in Chinese, then the problem of chain uniqueness does not arise, since the different types of topics are licensed in different positions. The following data suggests that the derived topic is in fact in the clause initial specifier position of CP:

- (3.20) *neiben shu ruguo ni bu xihuan, ni jiu bu yongkan.*
 that book if you not like, you then not need read.
 ‘If you don’t like that book you don’t have to read it.’

In this example, the topic clearly precedes the complementiser *ruguo* (‘if’) suggesting that it is in Spec CP. However the topic is also licensed after the complementiser:

- (3.21) *Ruguo neiben shu ni bu xihuan, ni jiu bu yongkan.*
 If that book you not like, you then not need read.
 ‘If you don’t like that book you don’t have to read it.’

This seems to indicate that the topic is also licensed adjoined to IP, so the problem of chain uniqueness resurfaces.

The most radical conclusion to these problems of Case assignment is the hypothesis that Case theory is simply not relevant to Chinese. The alternative is to assume that a more sophisticated analysis of the problematic data will yield evidence for Case effects in Chinese. This is the approach taken in Li 1985. Li’s is the most detailed investigation of the Case properties of Chinese. As such, the next section is devoted to a critical examination of the empirical predictions made in her analysis, focusing on the appropriateness of a Case theoretical approach to the data in hand.

3.2 The Case theoretical approach to Chinese

In the following sections, I first outline in detail the motivations and assumptions of Li’s Case based approach to Chinese phrase structure. Once all the assumptions have been explained, section 3.2.2 gives a critical evaluation of these assumptions, showing where they are inconsistent and where they make the wrong predictions. The following

sections shows how Li applies her assumptions about Case assignment to problems of word order and non-canonical word orders, and shows the problems with her analyses.

3.2.1 The properties of abstract Case

Here, Li's basic assumptions about the Case properties of different lexical categories in Chinese are summarized, along with the constraints relating to Case assignment.

Case assigners and directionality of Case

Based on the assumption that the Case Filter holds for Chinese, Li uses the following data to determine which categories can assign Case and which positions they assign Case to. Firstly, the well-formedness of the object in postverbal position, in contrast to the requirement of *ba* to mark that object in the preverbal position is taken as evidence that the verb in Chinese is a Case marker, assigning Case to its right:

- (3.22) a. ta jingchang da haizi.
 he often beat child
 'He often beats children.'
- b. *ta jingchang haizi da de hen tong.
 he often child beat *de* very hurt.
- c. ta jingchang ba haizi da de hen tong.
 he often *ba* child beat *de* very hurt.
 'He oftens beats the child so much that it (the child) hurts.'

Prepositions are also shown to assign Case to their right. In other words Chinese is shown to have prepositions and not postpositions:

- (3.23) a. ta cong xuexiao lai le.
 she from school come *le*
 'She has come from school.'
- b. *ta xuexiao cong lai le.
 she school from come *le*

Nouns, on the other hand, are not Case assigners at all:

- (3.24) a. *tade xingqu zhejian shi.
 her interest this matter
 b. *tade zhejian shi xingqu.
 her this matter interest
 c. ta dui zhejian shi de xingqu.
 her toward this matter *de* interest
 ‘her interest in this matter’

While adjectives do appear to be able to assign Case:

- (3.25) wo hen manyi tade biaoan.
 I very satisfied her performance
 ‘I’m very satisfied with her performance.’

Li concludes from this data that V, P, and A are all Case assigners assigning Case to their right.

One other potential Case position remains to be considered, namely the subject position. Standardly the subject position is assumed to be Case marked in finite clauses and not Case marked in non-finite clauses. This distinction between finite and non-finite clauses has always proved controversial for Chinese because of the lack of overt morphological marking for either tense or agreement. Huang (1982b) argues that the finiteness distinction in Chinese can be drawn on the basis of the presence or absence of lexical content in Infl. Li rejects Huang’s analysis of Infl, but agrees with him in maintaining that Chinese does have a finiteness distinction. The evidence for the distinction comes from two modal verbs; *hui* and *yao*. These verbs both have lexical meaning; *hui* meaning approximately ‘be able to’, and *yao* meaning ‘want’. They have also both become purely temporal in reference in some instances, both being used as future tense markers:

- (3.26) chezi hui/yao kai le.
 bus FUT drive *lc*
 ‘The bus is going to leave.’

In control constructions, where the embedded clause might be expected to be non-finite, these verbs are restricted to their lexical meaning and cannot be interpreted purely temporally:

- (3.27) a. *wo quan ta hui lai.
 I force her will come
 b. wo yao ta hui zuo.
 I want her be able do
 'I want her to be able to do it.'

Having established the finiteness distinction, Li adopts the standard assumptions about the relationship between finiteness and Case; namely that finite Infl assigns nominative Case to its specifier position. She goes on to assume that there is no non-finite Case-assigning complementiser comparable to the English *for*, and that there are no ECM verbs in Chinese. From this she predicts that Chinese infinitives will never have an overt lexical subject, nor can the empty subject of the infinitive be a variable. It therefore cannot be extracted nor discourse bound⁴. In support of this prediction Li cites the following examples:

- (3.28) a. wo jiao ta (*ta) chi fan.
 I get him (*him) eat food.
 'I got him to eat.'
 b. wo quan ta (*ta) jie yan.
 I persuade her (*her) give up smoking
 'I persuaded her to give up smoking.'
 c. wo dasuan (*ta) bu qu.
 I intend (*her) not go
 'I intend not to go.'
 d. wo gaosu ta (ta) yiding hui qu.
 I tell her (she) of course can go

The verbs in (3.28a, b and c) are all assumed to select a non-finite complement. (3.28a and b) are given an analysis as object control verbs, and (3.28c) as a subject control verb. They do not license an overt subject in their complement clause. In (3.28d), on the other hand, the verb *gaosu* ('tell') is assumed to select a finite clause, which has an overt subject. Thus Li concludes that finite clauses are distinguished by Tense features and that Case is assigned to the subject position by Tense.

⁴Discourse boundedness is assumed to be accounted for by extraction of a zero topic following Huang (1984); Huang (1987).

Case assignees

Having established which categories are taken to be Case assigners, we turn our attention to the question of which categories are argued to require Case and therefore to be subject to the Case Filter. Firstly, Li claims that all NPs require Case regardless of their status as arguments or non-arguments. Thus the temporal and locative expressions in the following examples must receive Case:

- (3.29) a. **ta nian shu sange xiaoshi.*
 she read book three hours.
- b. *ta ba shu nian sange xiaoshi.*
 she *ba* book read three hours.
 ‘She read for three hours.’
- c. *ta nian shu nian sange xiaoshi.*
 she read book read three hours.
 ‘She read for three hours.’
- (3.30) a. **wo gongyuan-li kandao ta.*
 I park-in see her
- b. *wo zai gongyuan-li kandao ta.*
 I at park-in see her
 ‘I saw her in the park.’

Li’s explanation for the paradigm in (3.29) is that both the object NP *shu* (‘book’) and the temporal expression *sange xiaoshi* (‘three hours’) require Case. The example in (3.29a) is ill-formed because there is only one Case assigner (the main verb) assigning Case to the object NP, leaving the temporal DP un-Case-marked. The structure is rescued by the use of the object marker *ba* in (3.29b) and by verb reduplication in (3.29c) to Case mark the object, leaving the temporal NP Case marked by the verb. Similarly (3.30) is not licensed unless both the object NP and the locative NP receive Case. In this case, the locative NP is Case marked by the preposition *zai*.

In the light of the following examples, Li proposes that S’ (CP) also appears in Case-marked positions.

- (3.31) a. wo dui [ta bu neng lai] hen bu gaoxing.
 I towards [she can't come] very not happy
 'I'm very unhappy that she can't come.'
- b. wo dui [zheijian shi] hen bu gaoxing.
 I towards this matter very not happy
 'I'm very unhappy about this.'
- (3.32) a. wo quan ta [bu yao lai].
 I persuade her [not want come]
 'I persuaded her not to come.'
- b. wo quan ta [zheijian shi].
 I persuade her this matter
 'I persuaded her of this matter.'

What these examples show is that wherever an argument NP is licensed a clause is also licensed. Note that unlike NPs, in the case of clauses a distinction is made between selected clauses and non-selected clauses, where only the selected clauses are Case marked.

Li, thus, concludes that the categories requiring Case are S' and NP.

Conditions on Case

In addition to the Case Filter, Li adopts the *Case Resistance Principle* and also the principle of *Case Adjacency* (Stowell 1981). Case Resistance is formulated as a stipulation that prevents a Case assigning category from appearing in a Case marked positions. In particular, it prevents PPs from appearing in Case marked positions:

- (3.33) a. wo zhidao (*zai) mingtian you hao tianqi.
 I know (*at) tomorrow have good weather
 'I know tomorrow the weather will be good.'
- b. (*zai) xingkongxia shi shuijiao de hao difang.
 (*at) stars-under is sleep de good place.
 'Under the stars is a good place to sleep.'
- c. cong (*zai) men de houbianr.
 from (*at) door de behind

The first two of these examples show the illformedness of prepositions generated in subject position of a finite clause. The last example shows that a PP cannot appear as complement to a PP. Li explains the illformedness here by Case Resistance since the DP but not the PP is licensed in each of these examples.

Case Adjacency is a constraint on the distance between a Case assigner and its assignee, which in effect allows nothing to appear between them. Evidence that this principle is operative in Chinese is given from the focus particle *shi* (which is actually the verb ‘to be’). As the scope of the focus particle is read from its surface position, it appears in various positions in the sentence. It cannot appear, however, between a Case assigner and its object⁵:

- (3.34) a. (shi) ta changchang yong gunzi ba haizi nong ku.
 (FOC) he often use broomstick *ba* child cause cry
 ‘He often makes the child cry with the broomstick.’
- b. ta (shi) changchang yong gunzi ba haizi nong ku.
 he (FOC) often use broomstick *ba* child cause cry
- c. ta changchang (shi) yong gunzi ba haizi nong ku.
 he often (FOC) use broomstick *ba* child cause cry
- d. ta changchang yong (*shi) gunzi ba haizi nong ku.
 he often use (*FOC) broomstick *ba* child cause cry
- e. ta changchang yong gunzi (shi) ba haizi nong ku.
 he often use broomstick (FOC) *ba* child cause cry
- f. ta changchang yong gunzi ba (*shi) haizi nong ku.
 he often use broomstick *ba* (*FOC) child cause cry
- g. ta changchang yong gunzi ba haizi (shi) nong ku.
 he often use broomstick *ba* child (FOC) cause cry
- h. ta changchang yong gunzi ba haizi nong (*shi) ku.
 he often use broomstick *ba* child cause (*FOC) cry

What we see here is that the Focus particle can appear anywhere except after the main verb *nong* (‘cause’), between *ba* and its object, and between the coverb *yong* (‘use’) and

⁵I have not attempted to give translations for each of the examples here, as the use of the focus particle would be translated by different intonations in English.

its object. On the assumption that these heads are all Case assigners, Li concludes from this that it is Case Adjacency that rules out the unacceptable focus constructions.

3.2.2 Summary and discussion

Summarising Li's view of Case so far, she makes the following claims:

- All V, P, and A are Case assigners.
- All NPs and subcategorised clauses require Case.
- Case is assigned to the right.
- PPs cannot appear in Case positions.
- Case Adjacency holds for Chinese.

There are a number of problems with this view. In this section, each of the above claims is discussed, giving an outline of the problems and counterexamples.

Adjectives as Case Assigners

Firstly, although crucial to Li's approach, the claim that all adjectives assign Case is dubious. The example in (3.25) is not accepted by many speakers, and even those who do accept that particular example, do not generally accept adjectives with unmarked objects:

- (3.35) a. *wo hen bu gaoxing zheijian shi.
 I very not happy this matter
 b. wo dui zheijian shi hen bu gaoxing.
 I towards this matter very not happy
 'I'm very unhappy about this.'

Here *gaoxing* ('happy') requires the preposition *dui* to license its complement. The claim that Adjectives assign Case is unfortunately vital to Li's account of word order. I return to this below.



Directionality of Case

Previous accounts of Chinese phrase structure have always posited cross categorial variation in head placement in Chinese, with N being head final and all other lexical categories being head initial. Li observes that the odd category with respect to head placement (ie. N) is also the odd category with respect to Case assignment. She proposes that this is no coincidence; rather the head placement properties of a head are derived from the interaction of directional theta and Case assignment. In particular, theta assignment is to the left, so Chinese is consistently head final, but Case assignment is to the right, hence the head initial appearance of VP and PP. What Li fails to address in relation to the directionality of Case assignment, is Case assignment by the particle *de* in an NP:

- (3.36) a. haizimen de shu
 children *de*book
 'the children's book'
- b. hen piaoliang de haizi
 very pretty *de* child
 'a very pretty child'
- c. bu xiang qu de haizimen
 not want go *de* children
 'the children who don't want to go'

Li argues that in these examples *de* is functioning as a Case assigner, but does not explain the difference in directionality of Case assignment here. The same problem with directionality of Case arises in relation to the Case marking of subjects. These are Case marked by Tense, which also Case marks to the left. Thus cross categorial variation in head placement is merely replaced by cross categorial variation in directionality of Case assignment⁶.

Case Resistance

Returning to the properties of *de* as a Case marker, a further set of problems relates to the Case Resistance Principle. This prevents a category whose head is a Case assigner

⁶There is an obvious generalisation to be followed up here; namely that lexical categories Case mark to the right, and functional categories Case mark to the left.

from being generated in a Case marked position. It is this, Li argues, that explains why the following example is not licensed:

- (3.37) * cong beijing de ren
 from Beijing *de* person

This structure is rescued by the addition of the verb *lai* ('come'), as follows:

- (3.38) cong beijing lai de ren
 from Beijing come *de* person
 'a person from Beijing'

Under Li's assumptions however this structure should also not be licensed since the category Case marked by *de* here is a VP and the head of the VP, V^0 , is a Case assigner. Similarly, given Case Resistance, Li also predicts that an adjective is not licensed in this position, but the example in (3.36b) shows that this prediction does not hold. One option to solve the problem of VPs and APs in the Case position of *de* is to resolve that the adjective and verb here are not Case markers. This solution is not available where the verb is clearly transitive and the whole expression definitely licensed:

- (3.39) xihuan ta de pengyou
 like her *de* friend
 'the friend that likes her'

A more likely solution is to propose that the category involved in (3.38) and (3.39) is clausal (S or S' in Li's system) and therefore not subject to the Case Resistance Principle. Such a solution also allows Li to retain her claim that all V^0 and A^0 are Case assigners, which is crucial to her account of word order.

Even given this, a problem still arises with Case Resistance and PPs in the Case position of *de* since a PP in this position does not always lead to ungrammaticality. The evidence is found in one of Li's own examples:

- (3.40) ta dui zhejian shi de xingqu.
 her toward this matter *de* interest
 'her interest in this matter'

Given the grammaticality of the PP in this example, Case assignment and Case Resistance clearly cannot be the explanation for the ungrammaticality of the prenominal

PP in (3.37). Instead a more likely analysis is in terms of theta role assignment and argumenthood. In particular the PP appears to be licensed where it is theta marked by the head noun as in (3.40). In (3.37) the head noun has an empty theta grid and the PP is not theta marked. This suggests that the difference in grammaticality of (3.37) and (3.40) might be analysed in terms of the Theta Criterion. An analysis on the basis of thematic role assignment is given in the next chapter.

A further problem for Case Resistance is the appearance of PPs in the postverbal position:

- (3.41) ta shui zai di shang.
 she sleep on ground on
 ‘She sleeps on the ground.’
- (3.42) ta ba shu fang zai zhuozi shang.
 she *ba* book put on table on
 ‘She put the book on the table.’

In (3.41) it could be argued that the verb is intransitive, and that Case Resistance does not apply. However, Li’s system crucially requires that all V^0 be analysed as Case assigners. The example in (3.42), however shows a clearly transitive verb and again the PP is licensed. Li’s solution to this data is to argue that the preposition (*zai* in this case) is incorporated into the main verb. The evidence for this comes from the attachment of aspectual markers. Aspectual markers that cliticise on to the verb are not licensed after the main verb in these contexts. More importantly where an aspectual marker is licensed in these contexts it appears cliticised onto the preposition.

- (3.43) a. *ta shui le/zhe/guo zai di shang.
 she sleep ASP at ground on
- b. *ta ba shu huan le gei ni.
 she *ba* book return *le* give you
- (3.44) a. ta ba shu huan gei le ni.
 she *ba* book return give *le* you
 ‘She gave the book back to you.’

This is very suggestive of a head movement of P^0 to adjoin to V^0 , as Li claims. As far as the morphological subcategorisation of the aspectual particle is concerned, it appears to

be satisfied by the $V^0 + P^0$ together. Since the aspectual particle is restricted to combine with a V^0 , this suggests that $V^0 + P^0$ form a V^0 at some level. There are however a number of unresolved questions here. For example, why is it that the equivalent of (3.44a) is not available for (3.43a)? In other words, why does the $V^0 + P^0$ combination *shui zai* ('sleep on') in (3.43a) not license an aspectual particle:

- (3.45) **ta shui zai le/zhe/guo di shang.*
 she sleep at ASP ground on

A possible direction to consider for a solution is the categorial status of the P^0 in the two sentences. Both *gei* and *zai* appear to be able to function as main clause predicates:

- (3.46) *ta zai shanghai.*
 she in Shanghai
 'She's in Shanghai.'

- (3.47) *wo gei le ni sanben shu.*
 I give *le* you three book
 'I gave you three books.'

gei is clearly functioning as the matrix verb here, licensing the aspectual particle *le*. *zai* on the other hand does not license any aspectual particles, and is equally plausibly analysed as a predicative PP with a zero copula. A further difference in behaviour between *shui zai* and *huan gei* that Li fails to comment on is the fact that *shui zai* but not *huan gei* allows insertion of the focus marker *shi* between the V^0 and the alleged P^0 . This is perhaps related to the fact that the PP in (3.43a) is an adjunct (or perhaps a non-core thematic role), whereas the PP in (3.43b) realises a core thematic role of the verb *huan* ('return'). These differences in behaviour suggest that the licensing and structure of postverbal PPs is considerably more complex than Li acknowledges and is not amenable to a simple Case theoretic analysis.

Tense as a Case assigner

Li's arguments for Tense as a finiteness distinguisher and hence a Case assigner centre on an ambiguity in the interpretation of two modal verbs *hui*, and *yao*. In particular, the claim is that these verbs cannot have a purely temporal reference in control structures. The following counterexamples however show *yao* with future reference in control complements:

- (3.48) a. wo quan ta bu yao lai.
 I persuade her not will come
 'I persuaded her not to come.'
- b. wo zhunbei mingtian yao canjia yige hui.
 I plan tomorrow will attend a meeting

Furthermore, Li claims to correctly predict that since these control complements are untensed, they can never license an overt subject. The following set of examples show that this prediction does not in fact hold:

- (3.49) a. wo quan Lisi nabu dianying ta yinggai qu kan.
 I persuade Lisi that film he should go look.
 'I persuaded Lisi to go see that film'
- b. wo quan Lisi tade erzi ye qu kan nabu dianying.
 I persuade Lisi his son also go look that film.
 'I persuaded Lisi that his son should go see that film'
- c. wo quan Lisi nabu dianying tade erzi ye qu kankan.
 I persuade Lisi that film his son also go look.
 'I persuaded Lisi that his son should go see that film'

It might be argued for (3.49) that the verb *yinggai* ('ought') is a modal verb, marking the clause as finite, or alternatively that the pronoun *ta* is just a resumptive pronoun. However, we also find in (3.49b) and (3.49c) that the same sentence is licensed with only the main verb *qu* ('go') and with an overt lexical subject *tade erzi* ('his son'). Of course, these examples could be explained as involving the projection of an empty finite Tense node, which is projected where there is an overt subject, but the evidence for this is thin and the argumentation circular.

Related to questions of non-finite complements is Li's assumption that Chinese does not have ECM verbs. This is patently contradicted by her own data:

- (3.50) wo yao ta hui zuo.
 I want her be able do
 'I want her to be able to do it.'

Under Li's own assumptions, the embedded clause here must be non-finite, because *hui* is restricted to its modal, non-temporal interpretation. Given that *ta* ('her') is not an

argument of the matrix verb *yao* ('want'), the obvious analysis of this construction for the Case theoretic approach is as an ECM verb.

Case Adjacency

Lastly, Li claims that insertion of the focus marker *shi* provides evidence for Case Adjacency. However one of the three positions in which *shi* is shown not to be licensed is the following:

- (3.51) *ta changchang yong gunzi ba haizi nong (*shi) ku.*
 he often use broomstick *ba* child cause (*FOC) cry

The ill-formedness of *shi* in this position cannot be explained in terms of Case assignment. Even if *nong* ('cause') can be argued to be a Case assigner, an assumption which itself is problematic, *ku* ('cry') not only cannot be argued to require Case, but according to the Case Resistance principle should not be licensed in a Case position, since, as a verb, it is itself a Case assigner. In fact, reconsideration of the data in (3.34), suggests that the appropriate descriptive generalisation to capture the constraint on *shi* insertion should be formulated in terms of insertion between a lexical head and its complement position.

Conclusion

At the heart of Li's approach is the basic idea, standard to GB, that surface order is a function of Case assignment: arguments are generated in theta positions but cannot be assigned a theta role unless they are Case marked (Visibility). Hence absence of Case in a theta position will trigger movement, and a surface order that does not directly reflect semantic relations. The central claim of Li's work is thus that problems of word order and various non-canonical constructions are accounted for under a detailed analysis of the assignment of abstract Case. The problems outlined above thus present serious stumbling blocks for her account since they undermine the basic assumptions about Case assignment upon which her analyses depend. In particular, what has been shown is that there are problems both with Li's claims about which categories are Case assigners, and her proposal for the directionality of Case. At the heart of the problem is the fact that she has to assume that almost everything is a Case marker and similarly that anything that appears postverbally, does so because it requires Case.

In the next section, Li's analysis of word order in terms of Case assignment and the directionality of Case is reviewed. It is then shown how this approach extends to non-canonical word orders.

3.2.3 Case and word order

Word order facts

The word order facts that Li proposes to explain are the following:

- Complements generally follow the verb:

- (3.52) a. ta jiao yingwen.
 she teach English
 'She teaches English.'
- b. ta gei wo yiben shu.
 she give me one book
 'She gave me a book.'
- c. wo gaosu ta ni lai le.
 I tell her you come *le*
 'I'll tell her you've come.'

- However complements cannot co-occur postverbally with a postverbal modifier (since they appear in complement position, these are also sometimes referred to a V' complements):

- (3.53) a. *ta jiao yingwen hen duo nian le.
 she teach English very many year *le*
- b. ta yingwen jiao hen duo nian le.
 she English teach very many year *le*
 'She has been teaching English for many years now.'
- (3.54) a. *ta jiao yingwen de hen hao.
 she teach English *de* very good
- b. ta yingwen jiao de hen hao.
 she English teach *de* very good
 'She teaches English very well.'

- Other than goal or destination, PPs generally occur preverbally:

- (3.55) a. *wo zai zhuozi shang tiao .*
 I at table on jump
 ‘I’m jumping on the table.’
- b. *wo tiao zai zhuozi shang.*
 I jump at table on
 ‘I jump onto the table.’

- Both complements and modifiers of N precede N.

- (3.56) *chengshi de pohuai*
 town *de* destruction
 ‘the destruction of the city’
- (3.57) *yige hen piaoliang de haizi*
 one very pretty *de* child
 ‘a very pretty child’

Directionality of theta and Case as an explanation

Essentially, Li proposes to account for these facts by imposing directionality on both theta role assignment and Case marking independently. Chinese, she claims, is basically head final; in other words, theta assignment is to the left. Case assignment, on the other hand, is to the right. The Case Filter will therefore trigger movement of constituents requiring Case to the right of their heads. In this way the difference in internal word order between NPs and all other maximal projections follows from the Case assigning properties of the head. This also predicts that complements not requiring Case will not move. In particular, it predicts that PP will appear preverbally. Here the data is not conclusive. Li gives the following examples to show that the prediction holds:

- (3.58) **qian, ta jie xiang wo.*
 money, she borrow from me
- (3.59) **qian, ta jie ti wo.*
 money, she borrow for me

However, as Li observes above, the prediction does not hold in the case of Goal PPs:

- (3.60) ta ba shu fang zai zhuzi shang.
 she *ba* book put on table on
 'She put the book on the table.'

It also does not hold in some instances for locative PPs:

- (3.61) ta shui zai di shang.
 she sleep on ground on
 'She sleeps on the ground.'

The observation that Li fails to make is that the PPs appearing postverbally are more argument-like than those appearing preverbally, ie. they are arguably directly theta marked by the verb. This explains why a generalisation in terms of a particular thematic role does not provide an accurate characterisation of the set of PPs licensed postverbally; the characterisation must also take into account the relationship between the verb and the thematic role. Hence the following difference in interpretation of the prepositions *zai* and *gei* depends on its position in relation to the verb:

- (3.62) a. wo zai zhuzi shang tiao .
 I zai table on jump
 'I'm jumping on the table.'
- b. wo tiao zai zhuzi shang.
 I jump zai table on
 'I jump onto the table.'
- (3.63) a. wo gei ta mai yige qiche.
 I *gei* her buy one car
 'I bought a car for her.'
- b. wo mai gei ta yige qiche.
 I buy *gei* her one car
 'I bought her a car.'

In (3.62), the preverbal PP *zai zhuzi shang* has a locative interpretation, whereas the same PP postverbally is interpreted as a destination. In (3.63) the difference is between a benefactive interpretation for the preverbal PP and a goal for the postverbal PP. If the distinction is one of argumenthood, this presents serious problems for Li's basic assumption that Chinese is head-final, theta marking its complement to the left. If

anything, the evidence from the PP data is that theta marking is to the right. Even if the head finalness of Chinese can be maintained, since the PPs cannot be argued to have moved for Case reasons, some reason other than Case must be found for the surface position of these PPs.

The distribution of V and V' complements

One of the central problems of Chinese word order is the fact that although complements generally appear after the verb, there is a set of postverbal modifiers that block the appearance of the object postverbally. This is the source of the Postverbal Constraint discussed in chapter 1. Since these modifiers appear in the complement position (ie. the postverbal position), they are generally termed V' complements. The problem to be addressed is why the V' complements and the ordinary complements cannot both appear postverbally since from the configurational point of view, at least, they are claimed to occupy different positions.

In fact, the V' complements break down into three basic types: phrases of duration or frequency, descriptive phrases and resultative phrases. In this section each of these are examined in turn, giving Li's explanation for their interaction with V⁰ complements.

Duration and Frequency Complements

The following data are examples of duration and frequency complements:

- (3.64) a. ta pao le sange zhongtou.
 she run *le* three hours
 'She ran for three hours'
- b. ta qu le liangbian.
 she go *le* twice.
 'She went twice'

The problem arises where a duration or frequency expression is generated with a transitive verb and a postverbal object as this leads to ungrammaticality:

- (3.65) a. *ta nian le shu sange zhongtou.
 she read *le* book three hours
- b. *ta nian le shu liangbian.
 she read *le* book twice

Li cites the following ways in which the ungrammaticality can be resolved:

- (3.66) a. neiben shu ta nian le sange zhongtou.
 that book she read *le* three hours
 ‘She read that book for three hours’
- b. neiben shu ta nian le liangbian.
 that book she read *le* twice
 ‘She read that book twice.’
- (3.67) a. ta nian shu nian le sange zhongtou.
 she read book read *le* three hours.
 ‘She read the book for three hours’
- b. ta nian shu nian le liangbian.
 she read book read *le* twice.
 ‘She read that book twice.’
- (3.68) a. ta nian le sange zhongtou de shu.
 she read *le* three hours *de* book
 ‘She read the book for three hours’
- (3.69) a. ta ba shu nian le liangbian.
 she *ba* book read *le* twice
 ‘She read the book twice.’

In (3.66) the ungrammaticality is resolved by topicalisation of the object leaving only the frequency or the duration phrase in the postverbal position. An alternative, illustrated in (3.67), is verb reduplication, where a copy of the main verb is generated to license the object preverbally. (3.68) illustrates that the duration phrase, but not the frequency phrase, can be generated as a modifier of the direct object licensed by *de*, effectively quantifying the direct object. Lastly, in some cases it is also possible to license the object preverbally with *ba*, as in (3.69)⁷.

The conclusion that Li draws from this data is that the ungrammaticality is resolved by the insertion of an additional Case marker, or by movement of one of the postverbal constituents to another Case marked position. This suggests an obvious solution for Li to the co-occurrence restriction. She analyses the duration and frequency phrases as

⁷ *ba* fronting is analysed in detail in chapter 5.

NPs and therefore subject to the Case Filter. The evidence for such a claim is that the same expressions occur in such typical NP positions as subject position or modified by a determiner:

- (3.70) a. *sange zhongtou shi hen chang de shijian.*
 three hours is very long *de* time
 ‘Three hours is a long time.’
- b. *liangbian jiu gou le.*
 twice then enough *le*
 ‘Twice will be enough.’
- (3.71) a. *na sange zhongtou you chang you nan ao.*
 that three hours and long and hard endure
 ‘Those three hours were both long and hard to endure.’
- b. *na liangbian hao fan ren.*
 that twice good annoy person
 ‘Those two times were really annoying.’
- c. *wo kan le [hen nan ao de sange zhongtou] de shu.*
 I look *le* [very hard endure *de* three hours] *de* book
 ‘I read for three unendurable hours.’

Given the claim that both the duration complement and the frequency complement are NPs, the non-co-occurrence postverbally of these expressions with the direct object can be explained in terms of Case. The proposal is that all verbs are Case assigners, but they only have one Case to assign. An additional assumption is that the duration and frequency expressions can only be assigned Case by V^0 as there is no appropriate preposition in Chinese to Case mark them. Hence, the duration or frequency expression is obligatorily generated postverbally. The structural Case assigned by V^0 gets assigned to the duration or frequency expression, so the object cannot also be Case marked postverbally. The object will therefore violate the Case Filter unless it moves to another Case marked position.

Problems

The basic problem with this analysis is the premise that the ill-formed construction with two postverbal constituents is rescued by insertion of a Case marker or by movement

to another Case position. The constructions that argue against such a premise are topicalisation and the focus construction (also called a preverbal topic construction). The examples in (3.66) illustrate topicalisation constructions. The problem here is that there is no inserted Case marker, which should lead to the conclusion that the topic position is a Case marked position. This is not implausible since Chinese does have base generated topics that do not bind an empty category within the sentence, but presumably still require Case. However, Li argues that in topicalisation constructions, in contrast with the base generated topics, the moved topics are operators that bind a trace left in their D-structure position. More importantly, she argues that these topic bound traces are variables that must be Case marked⁸. There is a basic contradiction in this analysis, which is that the topicalisation operation is claimed to be a solution to the unavailability of postverbal Case, ie. topicalisation is triggered by the Case Filter. However, in order for the topic chain to be licensed, either the D-structure position of the NP must be a Case marked position, or the NP must move into a Case marked position before topicalising. Since Li's explanation of the canonical SVO word order is crucially reliant on the absence of Case in the D-structure position of the object NP, only the latter option is available to her. However since there is no Case position available, Li has to posit extra structure with no phonetic content, for which there is no evidence, and whose only function is to Case mark the variable.

In the focus construction the NP appears preverbally, with focus intonation (ie. stressed) and no licensing particle:

- (3.72) *ta yingwen jiao hen duo nian le.*
 she English teach very many years *le*
 'She's been teaching English for many years now.'

Li does not address how they are accounted for from a Case theoretical perspective. In particular, she does not address how the focus phrase is Case marked. Of course, one option available to her is to argue that the focus phrase is Case marked by the same mechanism as the trace of topicalisation discussed above, and furthermore is evidence for that Case marking mechanism. Data with non-selected elements in the focus position however argue convincingly against this conclusion. The following example illustrates that the frequency or duration expression can also appear in the focus position:

⁸The structure via which this is achieved is given in the discussion of topicalisation below.

- (3.73) ta bage xiaoshi xie lunwen, liangge xiaoshi tiaowu
 she eight hours write thesis two hours dance
 'She wrote her thesis for eight hours and danced for two.'

Li's proposal for the Case marking of the trace of topicalisation is based on the verb reduplication structure in (3.67) (repeated here):

- (3.74) a. ta nian shu nian le sange zhongtou.
 she read book read *le* three hours.
 'She read the book for three hours'
 b. ta nian shu nian le liangbian.
 she read book read *le* twice.
 'She read that book twice.'

Li suggests that this verb reduplication structure is generated in the topicalisation examples, but that after topicalisation of the NP the reduplicated verb is deleted at PF. Even if this were a plausible analysis of the Case marking of the object in focus position, it cannot account for the licensing of the frequency or duration expressions in focus since they are not licensed with overt verb reduplication:

- (3.75) *ta xie bage xiaoshi xie lunwen, tiao liangge xiaoshi tiaowu
 she write eight hours write thesis dance two hours dance

This shows that verb reduplication with PF deletion of the verb copy cannot be the mechanism via which the focus position is Case marked. Thus the focus data does not provide evidence for a verb reduplication analysis of Case marking of the variable in the topic chain. Both constructions remain a stumbling block for Li's whole approach.

Descriptive and resultative complements

The other V' complements are the descriptive and the resultative complements. These are often analysed together because of the following superficial similarity:

- (3.76) a. ta pao de hen kuai.
 she run *de* very fast
 'She runs very fast.'
 b. ta pao de hen lei.
 she run *de* very tired
 'She got tired from running'

What differentiates the two constructions is that the resultative expression can license an overt subject whereas the descriptive complement cannot:

- (3.77) a. *ta pao de tui hen kuai.
 she run *de* legs very fast
 b. ta pao de ren hen lei.
 she run *de* person very tired
 'She got tired from running'

Furthermore, in other dialects such as Cantonese and Taiwanese, the particle *de* gets realised differently in each construction: in Cantonese it is *tak* in the descriptive complement, and *dou* in the resultative complement, while in Taiwanese it is *de* in the descriptive complement and *ga* in the resultative complement.

One controversial question that must be addressed for both the descriptive complement and the resultative complement is whether they really are complements or in fact the main predicate. Li addresses this question, assuming the following minimal structure for the two types of complement:

- (3.78) NP1 XP V *de* AP

- (3.79) NP1 XP V *de* (NP2) VP

The evidence that Li gives that V in the above structures is not the head of the main predicate is essentially morphological. In particular, V cannot support any aspectual morphology including negation:

- (3.80) a. *ta pao zhe de hen kuai.
 she run PROG *de* very fast
 b. *ta pao le de hen lei.
 she run *le de* very tired
 (3.81) a. *ta bu pao de hen kuai.
 she not run *de* very fast
 b. *ta bu pao de hen lei.
 she not run *de* very tired

Related to this is evidence from the A-not-A question form. Predictably, since it cannot support negation, V also cannot take the A-not-A form. In contrast, the A-not-A form is licensed in the predicate of the resultative or the descriptive complement:

- (3.82) a. *ta pao bu pao de hen kuai.
 she run not run *de* very fast
 b. *ta pao bu pao de hen lei.
 she run not run *de* very tired
- (3.83) a. ta pao de hen kuai bu kuai.
 she run *de* very fast not fast
 'Does she run very fast?'
 b. ta pao de lei bu lei.
 she run *de* tired not tired
 'Did she get tired from running?'

Li takes the above to be evidence at least that V is not the head of the main predicate. The A-not-A data she also interprets as evidence for the descriptive and the resultative as the main predicate.

The remaining set of tests for main predicates suggests the opposite conclusion; namely that V in the above structures is the head of the main predicate. Firstly, from the prosodic point of view, the subject-predicate intonation and pause occur after NP1. Secondly the selectional restrictions hold between NP1 and V:

- (3.84) a. ta lai de hen turan.
 she come *de* very sudden
 'She came very suddenly.'
 b. ta lai le.
 she come *lc*
 'She came.'
 c. *ta hen turan.
 she very sudden

Li concludes from this evidence that neither the descriptive complement nor the resultative complement is the main predicate. The question then is why the main verb

does not show typical main verb morphological behaviour. Li does not address the licensing of aspectual markers but she does discuss the A-not-A construction.

Li's explanation for the appearance of the A-not-A form within the descriptive complement and not on the main verb relies on the claim made by Huang (Huang 1989) that the A-not-A construction is formed at PF. This claim is based on evidence that the A-not-A operation does not respect constituent structure. Li suggests that the word order constraint be treated as a checking device at the level of PF. This, according to Li, forces a reanalysis of the AP in the descriptive complement as the main predicate at PF, since as a non-Case assigner, by Case Resistance, it is not licensed in a Case marked position. Thus, at the level at which the A-not-A operation takes place, the descriptive complement is the main predicate even though at D-structure and S-structure it is not. This, she claims, explains not only the locus of A-not-A, but also the obligatory fronting of the direct object.

The explanation for the licensing of A-not-A in the resultative complement but not on the main verb of the resultative construction, takes a different direction. Here the claim is that the resultative construction patterns with a set of lexical verbs and compounds which also do not license the A-not-A form. The explanation for the lack of the A-not-A form, is therefore not specific to a feature of the resultative alone. The set of verbs that do not license A-not-A is the set of achievement verbs. Li claims that the resultative particle *de* forms a complex achievement verb together with the main verb. This complex achievement verb then simply patterns with other achievement verbs. As for the obligatory fronting of the direct object where there is a resultative complement, it presumably relates to the process via which the complex achievement is formed, but Li simply does not discuss it.

3.2.4 Postverbal constituents and Case assignment

So far, the claim is that all verbs, both transitive and intransitive Case mark to their right, and all NPs, both arguments and non-arguments, must be Case marked. In this section we consider Li's analysis of constructions that are potentially problematic for her approach; double object structures (DOSs), raising verbs, and presentative sentences. We then discuss in more detail her analysis of non-canonical word orders; topicalisation, passive and the *ba* construction.

Double object structures

Examples of the basic set of sentence types for DOSs are the following:

- (3.85) *wo song ta yiben shu.*
 I give her one book
 'I'm giving her a book.'
- (3.86) a. *wo song gei ta yiben shu.*
 I give give her one book
 'I'm giving her a book.'
- b. *wo song yiben shu gei ta.*
 I give one book give her
 'I'm giving her a book.'
- (3.87) *wo daying ta wo mingtian lai.*
 I promise her I tomorrow come
 'I promised her that I would come tomorrow.'

The example in (3.85) shows the simple DOS, where both objects appear postverbally as bare NPs in the fixed order indirect object (IO), direct object (DO). The problem here is how, given Case Adjacency, the DO gets Case marked. The examples in (3.86) present an additional problem as the IO object here appears with the coverb *gei* and the order of DO and IO is free. Lastly the example in (3.87) shows a DOS with a sentential complement. These present the same problem as (3.85) since sentential complements in Li's system also require Case.

DOSs without *gei*

Based on movement possibilities, the set of DOSs of the form in (3.85), (ie. [V NP2 NP1]) fall into two main groups, with verbs like *song* ('give as a present') in one group (A) and verbs like *chi* ('eat') in the second group (B). The verbs in group A allow overt movement and LF movement of NP1, but only allow LF movement for NP2. The examples in (3.88) show overt NP movement (ie. passivisation) which is licensed of the direct object (NP1) but not the indirect object (NP2). Overt A-bar movement, in this case relativisation, is shown to pattern in the same way in (3.89), in other words it is licensed only of the direct object (NP1). Lastly (3.90 & 3.91) illustrate Quantifier

Raising and Wh-movement at LF respectively and in both cases LF movement of either object is licensed.

- (3.88) a. Neiben shu bei wo song le ren.
 That book PASS I give *le* person
 'That book was given away by me.'

- b. *Ni bei wo song yiben shu.
 You PASS I give one book

- (3.89) a. Zhe shi wo song ta de shu.
 this is I give her *de* book
 'This is the book I'm giving her.'

- b. *Zhe shi wo song shu de pengyou.
 this is I give book *de* friend

- (3.90) a. Lisi song meige ren yiben shu.
 Lisi give every person one book
 'Lisi gave everyone a book.'

- b. Lisi song ta meiben shu.
 Lisi give her every book
 'Lisi gave her every book.'

- (3.91) a. Lisi song shei yiben shu?
 Lisi give who one book
 'Who did Lisi give a book?'

- b. Lisi song ta shenme?
 Lisi give her what
 'What did Lisi give her?'

Li assumes the following structure for these verbs. At D-structure, since theta marking is to the left, both objects appear to the left of the verb and as sisters of the verb as follows:

- (3.92) [NP1 NP2 V⁰]

Li adopts an analysis of DOSs from Stowell 1981 that purports to maintain adjacency and to capture the possessor interpretation of the indirect object via incorporation.

Thus, from the D-structure in (3.92), NP2 is licensed by incorporation into V^0 on the right, forming a new V^0 . NP1 moves to the right of this adjunction structure and is assigned structural Case by this newly formed V^0 . This yields the S-structure in (3.93):

(3.93) $[e_1 e_2 [V^0 \text{ NP2}] \text{ NP1}]$

Assuming this structure, the problem of the DOS is that the principle via which extraction of the incorporated NP is ruled out at S-structure, must not also rule out extraction at LF. Li proposes that it is the ECP that accounts for the extraction facts, since it imposes different constraints on gaps at PF than it does at LF.

(3.94) **Empty Category Principle**

- i. At LF empty categories obey Generalised Binding.
- ii. At PF empty categories obey c-government.

This is the notion of Generalised Binding defined by Aoun (Aoun 1985):

(3.95) **Generalised Binding**

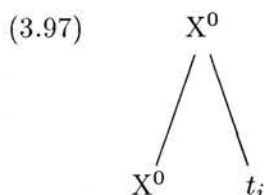
- A . An anaphor must be X-bound in its governing category.
- B . A pronominal must be X-free in its governing category.
- C . A referring expression must be A-free.

What interests us here is the definition of c-government used by Li, since this is what rules out ungrammatical instances of overt movement:

(3.96) **C-Government:** A c-governs B iff

- i. A governs B
- ii. A is a lexical head
- iii. A has a feature coindexed with the first maximal projection dominating B.
- iv. There is no Y^0 such that Y^0 dominates A/B

The point of this formulation of the ECP, in particular the final clause, is that it rules out any extraction that leaves a gap dominated by an X^0 at PF, as in the following subtree:



Hence, it rules out extraction of an incorporated element before LF. In its application here, it rules out extraction of the incorporated indirect object before LF. Of course this is not a surprising result since the clause of the ECP by which the extraction is ruled out, is merely a stipulation to that effect.

This ECP analysis of the DOS carries over to verbs which subcategorise for an NP and a sentential complement, as in (3.87). Recall that Li argues that subcategorised clauses also require Case. The NP complement must therefore be incorporated into V^0 so that the sentential complement can be Case marked by this newly formed verb. The ECP then predicts that the NP cannot be extracted out of the resultant adjunction structure. This is the correct prediction:

- (3.98) a. wo quan Lisi bu yao lai.
 I persuade Lisi not want come
 'I persuaded Lisi not to come.'

- b. *Lisi, wo quan bu yao lai.
 Lisi, I persuade not want come

- (3.99) a. wo daying Lisi bu yao lai.
 I promise Lisi not want come
 'I promised Lisi not to come.'

- b. *Lisi, wo daying bu yao lai.
 Lisi, I promise not want come

Thus what Li has done is assume, with almost no external motivation⁹, an incorporation account of the DOS, and then add to the ECP the stipulation that incorporated

⁹The only motivation that Li gives for incorporation in Chinese is a spurious argument about *de* insertion. This operation, she assumes, is licensed wherever two NPs are contiguous without requiring a possession relation between the two NPs. Since *de* insertion is not possible here, she concludes that the two NPs are not contiguous. This argument relies on too crude a formulation of *de* insertion, which although not requiring a possession relation, does appear to be restricted to nouns where one theta marks the other.

items cannot be extracted. Furthermore the notion of incorporation used here assumes adjunction of a maximal projection to a lexical head. This runs counter to the general principle that restricts adjunction to a category of the same level. In particular, adjunction to a lexical head is restricted to X^0 level categories by a constraint on morphological structure that disallows word internal maximal projections (see Baker 1988). Lastly, it is not clear that the chain formed under this analysis of topicalisation is well-formed. The argument moves first to a Case position and then raises over the coindexed trace of the first instance of move α to the topic position. The structure of the chain is ambiguous since the two traces mutually c-command each other. It also seems to yield a chain in which the tail is not a theta position.

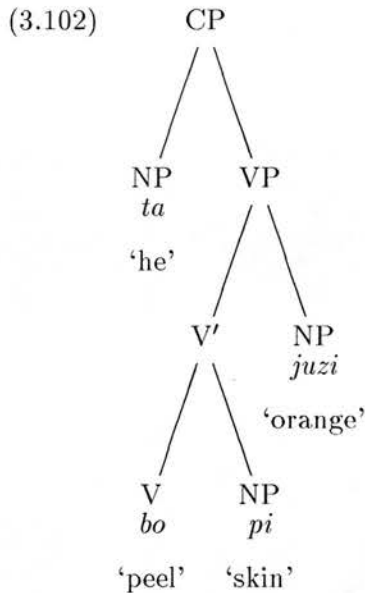
Turning now to the second type of DOS, these are distinguished from the first in that the thematic role of the indirect object is not goal but source. To these constructions Li assigns a very different analysis, relating them to retained object constructions, such as:

- (3.100) *ta ba juzi bo le pi.*
 he *ba* orange peel *le* skin.
 ‘He peeled the orange.’

She claims that they show the same potential range of surface orders as the retained object constructions, as well as displaying a similar semantic relationship between the two NPs. Hence she adopts an analysis in terms of inner and outer object (see Huang 1982b; Thompson 1973) relating the indirect object to the outer object and direct object to the inner object. Thus, they are not actually DOS constructions, as such, since the verb itself does not subcategorise for two complements. Rather, the indirect object/outer object is an object of V^0 and the direct object together. The following surface order, which gives the appearance of a DOS, Li claims is the consequence of Case marking of the outer object/indirect object in the specifier position of the direct object NP.

- (3.101) *ta chi le wo hen duo dun fan.*
 he eat *le* me very many meals food.
 ‘He ate a lot of food from me.’

There are a number of problems with this analysis.¹⁰ Firstly, it is not clear how *wo* ('me') in (3.101) can be Case marked in the specifier position of the direct object, when the direct object appears to already have the specifier phrase *hen duo dun* ('very many meals'). Secondly, Li does not address how the indirect object is theta marked if it is not theta marked by the verb. In fact throughout the discussion of this type of DOS, Li gives head initial structures such as the following:



Li adopts this structure from Huang 1982b, without establishing whether it should be reinterpreted as a head final d-structure or assumed to be an intermediary level between D-structure and S-structure as with the head initial structure discussed above. She also simply assumes that the specifier position of the direct object is a Case marked position. The evidence indicates that this is not actually true. In fact, it is usually only nouns in a relation of inalienable possession that can appear here without the particle *de* (which Li claims is a Case marker for prenominal NPs). Hence the following distinction in grammaticality:

¹⁰In fact with my own informants there was no detectable parallel between this type of DOS and the retained object construction. There are two possible sources for this discrepancy both of which seem to have some truth. Firstly, it is perhaps a dialectal difference. Secondly, this group of DOSs is not as homogeneous as Li's discussion makes it out to be. For example, although both in this group, the verbs *qiang* (rob) and *chi* ('eat') appear to pattern very differently both from each other and from the retained object construction. Given these empirical problems the discussion of this type of DOS remains brief.

- (3.103) a. wo (de) mama
 I (de) mother
 ‘my mother’
- b. wo *(de) shu
 I *(de) book
 ‘my book’

DOSs with *gei*

The particle *gei* is what is traditionally referred to as a coverb. A coverb can both function as a full matrix verb in its own right, or have a function more like a preposition, realising either an argument or a modifier of the main verb. The verb *gei* (‘give’) can appear as a DOS verb on its own, licensing both direct and indirect object as discussed above for the group A type verbs. When it appears with another verb, it can appear either preverbally or postverbally. This range of uses is illustrated in the following data:

- (3.104) wo gei ni sanben shu.
 I give you three books
 ‘I gave you three books.’
- (3.105) ta gei wo mai sanben shu.
 she *gei* me buy three books
 ‘She bought three books for me.’
- (3.106) a. ta mai gei wo sanben shu.
 she buy *gei* me three books
 ‘She bought me three books.’
- b. ta mai sanben shu gei wo.
 she buy three books *gei* me
 ‘She bought me three books.’

These examples illustrate that the interpretation of *gei* when it is not itself the main verb depends on its position in relation to the main verb. Focusing on postverbal *gei*, Li’s main concern is its categorial status; is it a verb or a preposition. Given her analysis of word order, she is forced to adopt the hypothesis that postverbal *gei* is a verb, since as we have already seen prepositions are predicted to appear preverbally only. The evidence she provides to support this hypothesis compares pre- and postverbal *gei*. She

finds that only postverbal *gei* can take aspect markers, or be used as an elliptical answer to a question. Neither can be used in the A-not-A form, but this has already been shown to be an unreliable indicator. Li concludes from this that postverbal *gei* is indeed a full verb, and as such it has full verbal meaning, denoting the transaction of an object. Hence its different interpretation from preverbal *gei* which Li suggests has more the role of a preposition indicating the goal of an action. In this way she claims to explain the following difference in grammaticality:

- (3.107) ta jiao yige mimi *gei* women.
 she teach one secret *gei* us
 'She taught us a secret.'
- (3.108) a. *ta jiao yingwen *gei* women.
 she teach English *gei* us
- b. ta *gei* women jiao yingwen.
 she *gei* us teach English
 'She teaches us English.'

These generalisations hold for postverbal *gei* in both of the following structures, of which the sentences in (3.106) are examples:

- (3.109) [V⁰ NP1 *gei* NP2]
 (3.110) [V⁰ *gei* NP2 NP1]

In other words, *gei* immediately following the main verb is also a full verb. This claim allows a more precise characterisation of the incorporation of postverbal prepositions discussed earlier. Only those prepositions that can also function as a main verb can be reanalysed with the matrix V⁰. This allows Li to capture the following differences in grammaticality:

- (3.111) a. ta ti women nian yipian wenzhang.
 she for us read one article
 'She read an article for us.'
- b. *ta nian ti women yipian wenzhang.
 she read for us one article
- c. *ta ti women.
 she for us

- (3.112) a. ta zhu zai womende jia.
 she live at our home
 ‘She lives at our home.’
- b. ta zai womende jia.
 she at our home
 ‘She is at our home.’

The preposition *ti* in (3.111) cannot function as a matrix verb, and as expected also cannot appear postverbally. In (3.112), on the other hand, *zai* does function as a matrix predicate and can appear postverbally. However, it is not clear that *zai* is actually a verb, since it does not license any aspectual markers. In fact Li argues that V^0 -*gei* is an instance of lexical compounding and that the structure in (3.110) be analysed as an ordinary DOS without *gei*.

In this way the DOSs with *gei* indirectly give evidence for Li’s Case theoretic analysis of the postverbal position, insofar as they do not involve a postverbal preposition, supporting the prediction that prepositions will only appear preverbally. Analysis of postverbal *gei* as a verb, however, creates one new problem, namely how to avoid the following ungrammatical sentence:

- (3.113) *wo song ta shu gei ta.
 I give her book give her

Li leaves the problem for future research.

3.2.5 Movement constructions

Raising structures

At first blush it would appear that Li’s system predicts that Chinese will not have raising verbs, since all verbs must be Case markers in order to license the duration and frequency NPs. Raising verbs are normally non-Case assigning verbs that do not theta mark their subjects but select a non-finite clausal complement. Movement of the embedded subject to the matrix subject position is thus triggered by the Case Filter. Since under Li’s system all verbs are Case assigners, it would seem that raising of the embedded subject would not be triggered, since it can be assigned Case by the matrix verb.

This prediction does not take into account a second feature of Li's framework; namely that clauses also require Case. Given this assumption, it is clear that Raising verbs are in fact predicted to exist. The structural Case assigned by the verb will be assigned to the clausal complement, assuming a one-to-one relation for structural Case assignment, the subject of the clausal complement remains in violation of the Case Filter. Movement of the embedded subject to the matrix subject position is therefore triggered. Li argues that there is a set of verbs that support this second prediction in that they behave as Raising verbs. These include verbs such as *keneng* ('perhaps'), *nan* ('difficult'), *kaishi* ('begin'). The Raising properties that she associates with these verbs are the following:

- With the exception of *kaishi* 'begin', they take clausal subjects:

- (3.114) a. ta qu nar keneng ma?
 she go there perhaps Q
 'Is it possible that she is going there?'
 b. ta qu nar nan ma?
 she go there difficult Q
 'Is it difficult that she goes there?'
 c. *ta qu nar kaishi le ma?
 she go there begin *le* Q

- They can appear between the subject and the verb of the embedded clause without changing the interpretation. Furthermore they can take the A-not-A form in this position, and be used as an elliptical answer to a question, from which Li concludes that they are the main verb in this construction:

- (3.115) a. ta keneng qu nar ma?
 she perhaps go there Q
 'Is it possible for her to go there?'
 b. ta nan qu nar ma?
 she difficult go there Q
 'Is it difficult for her to go there?'
 c. ta kaishi qu nar le ma?
 she begin go there *le* Q
 'Has she begun to go there?'

- (3.116) a. ta keneng-bu-keneng qu nar?
 she perhaps-not-perhaps go there
 'Is it possible for her to go there?'
 b. ta nan-bu-nan qu nar?
 she difficult-not-difficult go there
 'Is it difficult for her to go there?'
 c. ta kaishi-bu-kaishi qu nar le?
 she begin-not-begin go there *le*
 'Has she begun to go there?'

- If a reflexive appears in the embedded clause it can be interpreted as bound by the surface matrix subject:

- (3.117) a. ta keneng-bu-keneng zai ziji jia zuo shi?
 she possible-not-possible at own home do thing
 'Is it possible for her to do things at her own home?'
 b. ta nan-bu-nan zai ziji jia zuo shi?
 she difficult-not-difficult at own home do thing
 'Is it difficult for her to do things at her own home?'
 c. ta kaishi zai ziji jia zuo shi le ma?
 she begin at own home do thing *le* Q
 'Has she begun to do things at her own home?'

- Evidence from a verb-object idiom suggests that they do not theta mark their subject position. *you mo* is transliterated from the English *humour* and reanalysed as a verb meaning 'to tell a joke'. As a verb-object idiom, Li claims that the object *mo* has to be theta marked by the verb *you*.

- (3.118) a. zheige mo keneng bei ta you huai ma?
 this -mor perhaps by her hu- bad Q
 ‘Is it possible that this joke was told badly by her?’
- b. zheige mo nan bei ta you huai.
 this -mor difficult by her hu- bad
 ‘It is hard for this joke to be told badly by her.’
- c. zheige mo shi kaishi bei ta you huai.
 this -mor FOC begin by her hu- bad
 ‘She began to tell this joke badly.’

- Most importantly, Li shows that an overt subject in the embedded clause is not licensed. In other words, the subject raising appears to be obligatory:

- (3.119) a. *keneng ta qu nar.
 perhaps she go there
- b. *hen nan ta qu nar.
 very hard she go there
- c. *kaishi ta qu nar.
 begin she go there

The first property given by Li is aimed at showing that the potential raising verb can be predicated of a clause. In fact, the data is not as clear as this. Li formulates the data here in the interrogative, and it turns out that the judgements differ in the declarative. With *hen nan* (‘difficult’) it is marginal, and with *keneng* it is clearly ungrammatical. Of course this does not, of itself, argue against an analysis of these verbs as raising verbs. Raising verbs in English also do not always license a sentential subject. The claim that this data is grammatical does, however, pose problems with Li’s explanation of the triggering of raising of the embedded subject. Where the embedded clause is in the object position, it is claimed that the subject cannot be Case marked clause internally because the clause is non-finite. Li has to assume that the same clause in sentential subject position is finite since there is no available Case marker outwith the clause.

As for the verb appearing as the main verb between the subject and the embedded clause, this is the minimal requirement for a raising construction. The importance of

the claim here is that it should not affect the interpretation; the raising verb should still be interpreted as predicated of the whole clause not just over the subject.

The third piece of evidence for a raising analysis shows that the subject of the potential raising verb binds a reflexive in the embedded clause. This is intended to demonstrate that the matrix subject must at some level of representation be represented as the subject of the embedded clause. This relies crucially on the assumption that reflexives must be clause internally bound. However, it is well known that the reflexive *ziji* in Chinese is a long distance reflexive (Battistella 1989; Battistella and Xu 1990). For example, in the following sentence, the interpretation of the reflexive is ambiguous:

(3.120) Wang Ping renwei Zhang Bo xiangxin ziji.

Wang Ping believe Zhang Bo trust self

Either 'Wang Ping believes that Zhang Bo trusts him.'

Or 'Wang Ping believes that Zhang Bo trusts himself.'

In other words, the reflexive *ziji*, here, can be bound either by the embedded subject Zhang Bo or by the matrix subject Wang Ping. Thus the reflexive cannot be used as evidence for the underlying clause structure.

The last two pieces of evidence argue for the more crucial properties of raising verbs, namely that the subject position of the raising verb is not theta marked and that the subject of the clausal complement must move into the matrix subject position to get Case. The data in (3.118) illustrates quite convincingly that the subject position of these verbs is not theta marked. In other words these verbs display the thematic properties of raising verbs. Do they also display the Case properties of raising verbs? Recall that the prediction is that they will, although not because they are not Case assigners, since all verbs in Li's system assign Case. Under the assumption that the structural Case is assigned to the clausal complement, the Case assigning properties of the matrix verb are no longer relevant to the Case marking of the embedded subject. Instead, the prediction is that unless the subject is Case marked clause internally, movement to another Case marked position is triggered. However the prediction is only partially borne out. It is the case that the embedded subject of the non-finite complement must undergo subject raising. However, where the embedded clause is finite, the subject is still not licensed in situ, despite the fact that a finite clause should be able to Case mark its subject:

- (3.121) a. ?keneng ta hui qu nar.
 perhaps she will go there
 'She will possibly go there.'
- b. *hen nan ta hui qu nar.
 very hard she will go there
- c. *kaishi ta hui qu nar.
 begin she will go there

Li's solution to the question of NP raising out of finite clauses requires two auxiliary assumptions. Firstly, she argues that Chinese does not have an empty expletive, equivalent to *it* in English. Secondly she claims that Chinese is subject to the *Extended Projection Principle* (EPP) which states that every sentence must have a subject. The consequence of these two assumptions is that in order for the EPP to hold, the embedded subject must raise to the matrix subject position. However there are other potential raising verbs which do not require subject raising from either a finite or a non-finite complement:

- (3.122) a. ta sihu bing le.
 she seems ill *lc*
 'She seems ill.'
- b. sihu ta bing le.
 seems she ill *lc*
 'She seems ill.'
- c. sihu ta hui qu.
 seems she will go
 'It seems she will go.'

This suggests that even if these are indeed raising verbs, the correct generalisation to capture the properties of subject raising are not after all Case dependent.

Li's account of unaccusative verbs interacts with this account of raising verbs in problematic ways. Unaccusative verbs in Chinese are verbs of presence, appearance and disappearance. They are distinguished from other single argument verbs in that they allow both preverbal and postverbal subjects, the difference between the two being one of definiteness:

- (3.123) a. tankeche lai le.
 tank come *le*
 ‘The tanks have come.’
- b. lai tankeche le.
 come tank *le*
 ‘There are tanks coming.’

Li opts not to call these verbs “unaccusative” since she does not give them the standard analysis of unaccusative verbs. She refers to them as “presentative” verbs. Like unaccusative verbs, these verbs are argued to have no external argument, in other words they do not theta mark their subjects. However, given the assumptions of Li’s system, their analysis is forced to differ from standard accounts of unaccusativity in two ways. Firstly, as we have just seen Li claims that Chinese does not have an empty expletive, so the postverbal subject cannot be Case marked under coindexation with the expletive subject. Instead it receives structural Case directly from the verb, which is a Case marker, since all verbs are Case assigners.

Evidence for this analysis of the Case assigning properties of these unaccusative verbs is given from the Case marking possibilities of locative phrases in presentative sentences. Locative NPs generally appear preverbally, Case marked by the preposition *zai*. This is also the case in the presentative sentence where the subject is preverbal, as in (3.124a). Where the presentative subject appears postverbally, however, the structural Case assigned by Tense to the subject position is unassigned. The locative NP can therefore be moved into subject position and be assigned Case by Tense, as in (3.124b).

- (3.124) a. tankeche zai xuesheng qianmian lai le.
 tanks at students before come *le*
 ‘The tanks arrived in front of the students.’
- b. xuesheng qianmian lai tankeche le.
 students before come tanks *le*
 ‘In front of the students came tanks.’

This evidence is based on an analysis of Chinese locative expressions in which the functions of a preposition are divided between the postnominal particles such as *shang* (‘on’) and *xia* (‘under’) which provide the semantic information as localisers, and the semantically empty Case marker *zai*, which acts as a formal licenser. The prediction of

such an analysis, given the Case Filter and Case Resistance, is that *zai* should appear just in case there is no other Case marker available. This prediction does not hold in two instances. Firstly, the localised NP can appear in the topic position without *zai* although according to Li the topic position is not inherently Case marked:

- (3.125) *zhuozi shang, ta fang le yiben shu.*
 table on, she put *le* one book
 'On the table, she put a book.'

Secondly, it should in fact not only be possible but given Case Resistance actually obligatory to omit *zai* wherever an NP is licensed, since if the NP is licensed it must be a Case marked position and prepositions, as Case markers, are not licensed in Case marked positions. This is clearly not the case. Preverbally it seems that *zai* is optional, whilst in postverbal complement position, contrary to prediction, it is obligatory. As seen above, Li solves the violation of Case Resistance by arguing for reanalysis of *zai* with the verb. The appearance of *zai* here is nonetheless inconsistent with the claim that *zai* is only a Case marker, since the verb is already a Case marker.

The advantage of this approach to unaccusative/presentative verbs is that the ungrammaticality of the following example in which the subject appears postverbally with a *V'* complement falls under the broader Case theoretic account of postverbal NPs:

- (3.126) *chuan shang tang le hen jiu yige ren.*
 bed on lie *le* very long time one person

The ungrammaticality is a consequence of the competition between the postverbal subject and the duration phrase for the structural Case assigned by *V*⁰ to its complement position.

One problem with this analysis is that it directly contradicts the claim that Chinese is subject to the EPP. This predicts that where there is no locative phrase filling the subject position, the internal argument of the unaccusative/presentative verb should move to satisfy the requirement that every sentence have a subject. The example in (ab) shows that this is not the case. It also predicts that where the locative phrase appears preverbally with a preposition, since it is not filling the subject position, the internal argument must move to the preverbal subject position. Again this prediction does not hold:

- (3.127) zai xuesheng qianmian lai tankeche le.
 at students before come tanks le
 'In front of the students came tanks.'

A further problem with this analysis is that it assumes a movement operation that should constitute an instance of improper movement. The movement of the locative phrase is movement from an A-bar adjunct position (the preverbal position of PP modifiers) to the subject position which is an A position. Li does not even address this problem. In the next chapter it is argued that the apparent locative subjects are not instances of movement but are indeed D-structure locative subjects.

Topicalisation and variables

In the debate over whether Chinese empty categories have any syntactic properties or are entirely pragmatically controlled, Li falls on the side of syntax, arguing that empty categories must be distinguished as to their type. She follows Huang 1982b in assuming that topicalisation is derived by movement and therefore yields a chain with an operator binding a variable, subject to the constraints on movement. However, she rejects Huang's proposal to treat Infl as a proper governor as unmotivated. Instead, she picks up on an observation made by Steve Harlow (mentioned in Wahl 1985) that subject-object asymmetries in wh-movement suggest that the ECP is involved. She argues that pronominals do not obey the ECP whereas variables do. Variables are thus under different constraints at each level of representation. They are subject to Subjacency at S-structure, c-government at PF and generalised binding at LF, the latter two being the ECP. Variables are also claimed to require Case. It is this last claim that is of interest here.

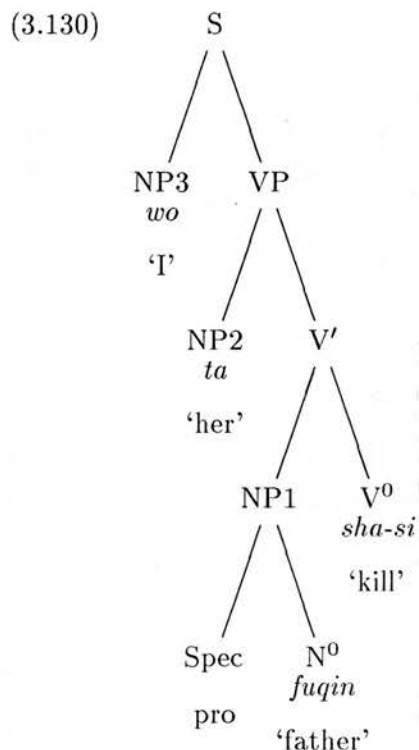
The claim that variables, in addition to subjacency and the ECP, are subject to the Case Filter provides an explanation of the fact that the subject of an infinitive cannot be a variable, as in:

- (3.128) a. wo dasuan jie guo shu.
 I plan borrow ASP book
 'I have planned to borrow books.'
- b. *tamen_i, wo dasuan *e_i* jie guo shu.
 them_i, I plan *e_i* borrow ASP book

Li also claims that the requirement that variables receive Case accounts for the following ungrammaticality:

- (3.129) **ta, wo sha-si le fuqin.*
 her, I kill le father
 (Intended: 'I killed her father.')

This is on the assumption that the above sentence is derived from the following structure in which the topic is generated as an 'outer object' and binds a *pro* in the specifier of the relational noun *fuqin* ('father'):



Extraction of NP2 from this position does not violate any constraints on movement, but the example in (3.129) is nonetheless ungrammatical. Since the whole chain requires Case, Li's proposal that this is ruled out by the Case Filter, reduces to the claim that the topic position is not Case marked.

One problem with this analysis of the ungrammaticality of (3.129) is that the D-structure that Li posits for it is precisely the D-structure that Li posits for retained object constructions such as:

- (3.131) *ta ba juzi bo le pi le.*
 she ba orange peel le skin le
 'She peeled the orange.'

However topicalisation of NP2, *juzi* ('orange'), in this case is grammatical:

- (3.132) *nage juzi ta bo le pi le.*
 that orange she peel *le* skin *le*
 'That orange she peeled.'

From this we can conclude either that these two examples do not share the same D-structure, or that the constraint on topicalisation in operation here is a non-syntactic one, and does not involve Case assignment. If Li's analysis of (3.129) is to be retained then a different analysis of (3.132) must be given in which NP2 is Case marked in its D-structure position.

A more serious problem for Li's claim that variables require Case (and one which Li herself notes) arises from Li's central claims about the interaction of Case and word order. In her account of word order, Li claims that topicalisation in the following example allows the structural Case assigned by V^0 to be assigned to the frequency phrase which requires Case.

- (3.133) *zheben shu wo kan hen duo bian le.*
 this book I look very many times *le*
 'This book I've read many times.'

The problem now is that the variable bound by the topicalised direct object also requires Case. Li's solution to this problem is to claim that the topic in (3.133) is topicalised out of a verb reduplication structure as in:

- (3.134) *wo kan zheben shu kan hen duo bian le.*
 I look this book look very many times *le*
 'I've read this book many times.'

The claim is that "at a later level of PF" the two copies of the verb merge by haplology.

Although this rescues Li's claim that variables require Case, it is highly unmotivated. It involves positing extra structure for which there is no phonetic evidence, posing problems of learnability. As a mechanism for Case marking it is also completely unconstrained; how is verb reduplication and deletion licensed just in case of topicalisation, and not, for example, where the complement is moved to a postverbal position? Furthermore, it is not clear how this analysis is reconciled with the standard analysis of

the verb reduplication structures as a deverbalised adverbial phrase. If the verb reduplication structure is an adverbial, then topicalisation out of this structure is simply not licensed, since it will constitute a violation of subadjacency. Providing a solution to this data is crucial, since the data was initially used as evidence for the Case theoretic account of word order.

3.3 Discussion of the Case theoretical approach

The central claim of Li's work is that

the theory of abstract Case, such as the Case Filter... plays an important role in capturing the distribution of categories, diachronic and synchronic word order facts, and movement structures of Chinese. (p. 414)

In the previous section, the finer details of this claim have been dissected. Many of the fundamental assumptions have been shown to have serious empirical flaws, in ways that undermine much of the subsequent analysis.

The principal hypotheses of Li's approach are the following: firstly, that theta roles and Case are assigned in different directions, secondly, that the distribution of different categories is determined by Case, in particular, that the restriction to only one post-verbal constituent boils down to the competition for a single structural Case position. Many of the problems with this approach can be summarised in relation to either one of these assumptions.

Firstly the directionality of Case assignment appears to vary cross categorially, Infl and the nominal particle *de* Case marking to the left, while prepositions and verbs appear to Case mark to the right. Secondly, the evidence for the directionality of theta assignment from the difference in head complement word order in NPs was shown to be inconclusive rather than arguing for assignment to the left. Furthermore, evidence from the distribution of PPs suggests that theta marking is to the right, in other words that Chinese is actually head initial and not head final as Li proposes.

The claim that Case determines the distribution of different categories was shown to break down in the case of adjectives and their complements, PPs and subjects. Adjectives are necessarily claimed to be Case assigners in order to account for the distribution of V' complements appearing with predicative adjectives, however this makes the wrong

prediction for the distribution of attributive adjectives. Furthermore, it also makes the wrong predictions for the arguments of adjectives, which are generally not directly licensed but licensed via a preposition. Li's prediction for PPs is that they will not appear either postverbally or as a complement to N since both these positions are Case positions. In fact, certain PPs are licensed in both of these positions and the distinguishing criterion appears to be not Case but argumenthood. Lastly, the distribution of subjects, which was claimed to be determined by the Case assigning properties of Tense, is not successfully predicted in either control constructions, or raising constructions. Control complements appear to allow overt subjects, without any evidence of finiteness. Subject raising appears to be obligatory with some raising verbs, and optional with others regardless of the finiteness of the embedded complement.

Thus there are clear empirical problems both with Li's basic theoretical assumptions and, inevitably, with the predictions drawn on the basis of these assumptions. Furthermore, in order to maintain her basic claims, Li is forced to adopt highly abstract, somewhat ad hoc analyses, involving no phonetic signature, for problematic constructions, such as topicalisation. Not only are such analyses unfalsifiable, they also present problems of learnability (see the discussion of the PFLP in section 2.3.4). The obvious conclusion to be drawn from these problems is that Case theory is not the appropriate tool to capture properties of categorial distribution and canonical and non-canonical word orders in Chinese.

Li's claim that

through the analysis of the syntactic behaviour of certain structures, we are able to determine that Case is relevant and valid in the grammar of Chinese.

suffers not only the empirical problems discussed above, but also conceptual problems since the notion of Case on which the above claim rests involves some departure from the standard concept of Case. In the next section, the range of notions assumed to fall under the concept of Case, and their applicability to Chinese, are discussed.

3.3.1 Which Case?

In the original formulation of the Case Filter, it was assumed to apply to any overt NP (Rouveret and Vergnaud 1980; Vergnaud 1982). Since then however Case assignment

has been associated to varying degrees with argumenthood and theta role assignment. This association not only provides intuitive motivation for the Case Filter, but also yields evidence of interesting interaction between Case assignment and theta assignment, eg. Burzio's Generalisation (discussed below).

Case theory, in its more recent formulations, is thus more like a theory of the configurational (grammatical) relations under which a semantic role (theta role) might be assigned by a predicate to its arguments. In other words, Case distinguishes the formal relations that license semantic relations. This is the central insight behind the principle of *Visibility* first suggested by Joseph Aoun, and discussed in Chomsky 1986a. Under the Visibility Condition, a noun phrase can only receive a theta role if it is in a Case marked position or linked to an expletive in a Case marked position (Chomsky 1986a p. 94). In this way the Case Filter is assumed to be derivable from the Theta Criterion via Visibility: a lexical argument must be assigned Case or it will not receive a theta role and will not be licensed. Deriving the Case Filter from Visibility changes the scope of the Case Filter in two significant ways. Firstly it extends Case requirements to empty categories, where the empty category is in an argument position (ie. a theta position). Secondly, it restricts the application of the Case Filter specifically to arguments; non-arguments, as non-theta marked NPs, are not subject to the theta criterion and will therefore not require Case.

This concept of Case as a formal identifier for predicate-argument relations is adopted more explicitly in Baker 1988, who identifies the intuition behind the theoretical statement of Visibility as the idea that "the reason NPs must get Case is because Case helps identify how the NP is to be interpreted in the structure" (p. 112). For Baker then, Case is "any way of representing predicate-argument relationships overtly in Phonological Form" (p. 115). Baker thus views abstract Case assignment as a system of indexing between the verb and the NP at the level of S-structure. Visibility is reinterpreted as the restriction of theta marking at LF only to Case indexed nouns, while the Principle of PF Interpretation requires that every S-structure Case indexing relationship be interpreted by the rules of PF. The Case Filter thus falls under the requirement that all argument NPs be "PF identified". This is a considerably broader notion than that discussed in Chomsky 1986a which limits the discussion to inherent Case and structural Case.

Although differing in the range of formal relations considered to fall under the concept of abstract Case, the approaches to Case discussed above both incorporate some notion of Visibility, both agreeing on the basic idea that Case is a property of arguments. In contrast, the Case theory expounded by Li takes the set of Case assignees to be all NPs and not just argument NPs. This effectively rejects any notion of Visibility by completely disassociating Case assignment from questions of theta assignment. In Li's system, Case is thus a formal requirement that has no semantic function or motivation. Rather it is an independent licensing condition that restricts the distribution of different lexical categories. Case, in this system, distinguishes between lexical categories that are Case assigners and lexical categories that require Case. This brings us to the second contrast with the above theories of Case. In Li's system Case does not play a differentiating role within a lexical category. So, for example, verbs do not distinguish between transitive and intransitive since all verbs are Case assigners¹¹. From the perspective of eliminating redundancy in the lexicon, this has to be seen as a positive feature in Li's approach since Case assigning properties do not need to be marked lexically. However conceptually, it is no longer clear that the property in question is the same as abstract Case since beyond the core idea of formal licensing it plays a very different role. One final difference of Li's notion of Case is that it is not just NPs but also clauses that are subject to the Case filter. Unlike NPs however Li assumes, without argumentation, that only selected clauses require Case.

One consequence of these differences is that Burzio's generalisation cannot apply in Li's system. This is a generalisation that eliminates the redundancy in the specification of Case and theta assigning features in the lexicon, ensuring that the Case assigning properties of monovalent verbs will fall out as a consequence of the thematic properties. Both the approaches to Case theory just discussed adopt some formulation of Burzio's generalisation. The core idea is that a verb that does not Case mark its object, will not theta mark its subject. This captures the Case and theta properties not just of lexically monovalent verbs, ie. unaccusatives, but also of derived monovalent verbs, ie. passives and middles. For example, the fact that a passive does not theta mark its subject is

¹¹The exception to this is Infl, which does not uniformly assign Case. This brings out an important point in the comparison with other approaches to Case assignment. It is only in the assignment of Case to complements that Li's assumptions are non-standard. (See the discussion of nominative Case assignment above)

argued to follow from the fact that the passive morphology absorbs structural accusative Case. Given Li's assumptions, Burzio's Generalisation does not hold for Chinese since even verbs that do not theta mark their subjects are claimed to be Case assigners. Li suggests that this is related to the lack of expletives in Chinese. Without expletives to transfer Case to a postverbal subject, the postverbal NP must satisfy the Case Filter by Case assignment by V^0 . In the face of raising data that appears to confirm Burzio's generalisation, Li argues that the obligatoriness of subject raising in these instances is a consequence of the EPP and the lack of expletives. As discussed above, these analyses are inconsistent and do not make the correct predictions for the distribution of subjects.

Li thus makes non-trivial changes to Case Theory under the assumption that as a module of Universal Grammar it must apply to Chinese. The previous section detailed the empirical problems with her account, from which the conclusion must be that the version of Case that she adopts is not appropriate to Chinese. The standard Chomskyan notion was also shown to be problematic for Chinese. The obvious question is whether any notion of Case is relevant to Chinese.

3.3.2 Licensing and Case in Chinese

The implications of claiming that Case is either relevant or irrelevant to a language depend entirely on the notion of Case that is at stake. As discussed above, the range of relations covered under the label Case vary enormously. The definitions of Case adopted by both Li, and Chomsky are purely extensional; the Case Filter is satisfied under one of a range of predefined configurations. Baker, on the other hand, offers an intensional definition of Case as the means by which predicate-argument relationships are grammatically identified. What they seem to have in common is the core idea of formal licensing. Licensing relations are of two kinds: formal and semantic. Semantic licensing involves among others theta marking, operator-variable bindings etc. The questions here are, what is formal licensing, and what is the relation between formal licensing and Case assignment. Are they simply different names for the same thing? Does one notion subsume the other? Alternatively, do languages with overt morphological Case systems show reflexes of formal licensing mechanisms independent of Case assignment? If they do this would indicate that formal licensing mechanisms and Case marking belong to different modules of the grammar.

The concept of Case discussed in Baker extends to any method of PF identifying arguments:

Virtually any overt relationship provided by the language can thus in principle satisfy the Visibility Condition

This effectively identifies the notions of Case and formal licensing for arguments. Intuitively, PF identification must belong in UG, since without some form of PF identification predicate-argument relations are not retrievable. An important distinction that has not yet been made in this discussion is the distinction between grammatical function and predicate-argument structure. This is a distinction that suggests that formal licensing and Case assignment are not quite the same. The role of Case assignment is divided between the marking of grammatical function (in the case of nominative and accusative case, and structural Case assignment) and the marking of particular thematic roles (in the case of inherent case assignment). Formal licensing differs from both of these roles. Firstly, formal licensing does not bear any immediate relation to grammatical function in the way that structural Case does. Secondly, a requirement of formal licensing does not carry with it the requirement that the formal licenser also be the thematic role assigner, whereas this biunique relationship is explicitly required in inherent case marking. These distinctions indicate that Case assignment and formal licensing are different notions, in that formal licensing is a much looser notion. They also indicate that the notion of Case is not of itself a very cohesive concept. The problem that these distinctions still do not resolve is whether the notion of formal licensing is independent of Case assignment, and therefore might be independently required by a language, or whether these different concepts of Case, case and licensing unify under some single notion such as PF identification as Baker suggests.

The claim put forward in thesis is that formal licensing is required universally. Furthermore, Case assignment is one means of satisfying this requirement of formal licensing. In other words, formal licensing subsumes the notion of Case assignment. This is the narrower concept of Case discussed in Chomsky 1986a where Case is restricted to inherent and structural Case; ie. morphological case, or government by a lexical Case assigner. In the light of the data discussed in this chapter, it is clear that Chinese does not display Case theoretic properties in this narrower sense of Case. In what follows, I adopt the conclusion that there is therefore no Case in Chinese, assuming that there is

nonetheless some form of formal licensing. This brings up two questions. Firstly, why is there no Case? Secondly, what is the nature of formal licensing in Chinese?

One possible explanation for the absence of Case properties in Chinese draws on recent proposals that Case correlates with agreement. This is proposed in Chomsky 1988a (p. 18) which extends Pollock's articulated theory of inflection to include AGR projections for both object and subject. The proposal is adopted in Chomsky 1992 (pp. 4) as a way of unifying the modes of Case assignment; all Case being "an expression of the SPEC-head relation, with the head being AGR and the NP with Case in the SPEC-AGR position." The claim is that not just nominative Case but all Case assignment takes place under a spec-head agreement relation with the head of a functional Agr head. This suggests an obvious reason for the absence of Case in Chinese. Chinese does not have any Agr heads. This explanation has the advantage of locating the source of parametric variation in the presence or absence of particular functional heads. However, without further investigation into the relation between Agr heads and Case, such a proposal is purely speculative.

As for the nature of formal licensing in Chinese, the remainder of this thesis is devoted to an investigation of the hypothesis that Chinese has a set of functional heads that serve as formal licensors, licensing internal arguments of the clause under a relation of head government. Since a number of these formal licensors also occur as full lexical verbs, this licensing relation is reminiscent of the Larsonian VP shell type of structure (Larson 1988), insofar as it involves a verbal head with a VP complement and the apparent object of the verbal head is licensed in the specifier of the VP complement. However, unlike the VP shell structure proposed for English, all the verbal heads are overtly realised. Furthermore, in the Chinese structure the lower most V^0 is a lexical head with an independent thematic grid, and all the dominating VP shells are projections of verbal functional heads forming an extended projection with the lexical verb. The next chapter looks at the distribution of a range of functional prepositions in Chinese that appear to be acting as this kind of functional head licensing the core (and perhaps non-core thematic roles of an independent nominal or verbal lexical head. The following chapter studies in detail the *ba* construction, in which *ba* is a functional head that licenses the internal argument of the verb but imposes additional constraints, in that it assigns it an aspectual role. The parallels between the *ba* construction and the *bei* construction suggest that a similar analysis might be possible for the *bei* construction. The licensing of external arguments both of nominal heads and of verbal heads, on the other hand, is assumed to take place directly via a spec-head relation with a functional head. This also qualifies as a head government relation under the m-command version of head government defined as follows (adapted from Rizzi 1990):

(3.135) **Head Government:** X head-governs Y iff

- i. X is a head
- ii. X m-commands Y
- iii. Relativised Minimality is respected¹².

Under this definition, a head head-governs its complement, and the specifier of its complement. It also head-governs its own specifier. It cannot head-govern any further

¹²A more accurate version of this definition requires that some notion of *barrier* also be respected, to ensure that not all functional heads can license arguments in the specifier position of their complements. So for example, the nominal functional head *de* cannot license an argument in the specifier position of NP:

into its complement as the head of its complement will act as a minimality barrier.

Thus, for example, we can claim that the function of *ba* in the *ba* construction given in (3.136), as well as licensing the internal argument, and assigning to it an aspectual role, is to license the subject in its specifier position, as illustrated in the following tree¹³:

- (3.136) haizi ba boli dapo-le.
 child *ba* glass broke
 ‘The child broke the glass.’

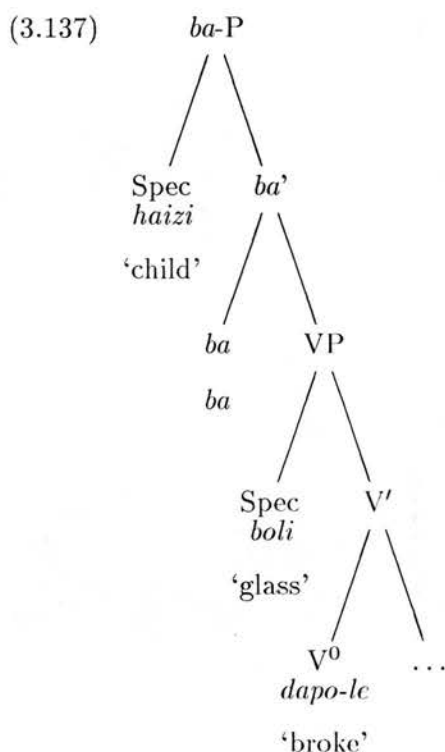
-
- (i) *wo de chengshi pohuai
 my *de* city destruction

The definition of Barrier for government given in Cinque 1990(p.42) seems to yield the desired results.

- (ii) *Barrier for Government*
 Every maximal projection that fails to be directly selected by a category nondistinct from
 [+V] is a barrier for government

The basic insight of such a definition is that the projections of functional heads within the verbal extended projection do not constitute barriers. On the other hand, in the example in (12) the functional head *de* is a category that is *distinct* from [+V], so the maximal projection of its NP complement *pohuai* (‘destruction’) will be a barrier to government, and *de* will not be able to govern *chengshi* (‘city’) in the specifier position. Thus, this definition of barrier has the desired effect for the licensing of arguments both in the verbal and in the nominal projection, although it needs to be redefined to be compatible with the Extended Projection assumption that functional categories do not select.

¹³The problem of subject licensing is not addressed in this thesis. It is assumed that subjects are represented in the thematic structure of the verb, but are licensed by an independent functional head and appear in their licensed position by virtue of the mechanism of thematic mediation discussed in the next chapter. In this way, the spirit of the Lexical Clause Hypothesis is maintained (Koopman and Sportiche 1989), without ruling out the possibility of generating internal arguments in the specifier of VP.



Note that this concept of formal licensing does not rule out the possibility of a head being doubly licensed. In this example, *boli* is head-governed by both the lexical head *dapo-le* and the functional head *ba* (cf. instances of double Case marking in free relatives (Cann and Tait 1990)).

It might appear from this discussion that the notion of formal licensing proposed here for Chinese bears little or no relation to the intuitive motivation originally given for the claim that formal licensing is required universally. Recall that the original motivation for formal licensing was the retrieval of predicate-argument structure. The obvious question in relation to the proposal for Chinese is how a simple requirement of head government can be sufficient for the retrieval of predicate-argument structure without some additional requirement that the head governor also be the thematic role assigner. The answer lies in the lexical properties of the functional heads that serve as formal licensors. The crucial feature of these functional heads is that they interact directly with the thematic structure of the lexical head. It is the fact that they have access to the thematic grid of the lexical head that means that they can PF identify the arguments of the head. Precisely how this happens is made clear in chapter 4.

On a more speculative note, a secondary mechanism for formal licensing is hypo-

thesised to account for the licensing of non-gap topics. The problems discussed above relating to the assignment of Case to the non-gap topic stem in part from the fact that Case assignment requires a relationship between a Case assigning head and the topic, whereas the non-gap topic has no unique semantic or configurational relationship with a head. If Baker is correct, however, in his claim that any form of overt PF marking can satisfy Visibility, then one possible approach to the formal licensing of the non-gap topic discussed above is prosody, which clearly distinguishes the derived topic from the non-gap topic. Evidence from the ungrammaticality of non-gap topics in embedded contexts indicates that non-gap topics are external to the whole clause. This is reflected in the prosody, which marks the non-gap topic by a heavy pause between the topic and the clause. In the next chapter, this marked prosody is shown to correlate with other syntactic distinctions.

Chapter 4

Thematic Mediation

4.1 Introduction

This chapter investigates the role of prepositions and the so-called coverbs in Chinese. Prepositions generally display a thematic ambiguity which has resulted in a certain amount of controversy as to whether they constitute a lexical category or a functional category. In many approaches, a subset of prepositions are assumed to be purely functional non-thematic Case assigners. Thus van Riemsdijk (1990) proposes that prepositions are functional heads participating in the nominal projection. Grimshaw (1991a) picks up on this proposal and suggests that much of the ambiguity of prepositions result from the fact that they are peripheral functional categories that are underspecified for major category feature. Functional prepositions are generally assumed to have a Case assigning role, as in the English preposition *of*. This is also the function assumed by Li for prepositions in Chinese. The previous chapter showed how this assumption made the wrong predictions for the behaviour of prepositions in Chinese. This chapter proposes an alternative approach which relies crucially on the notions of thematic structure and argument structure. Adopting the concept of *thematic mediation* developed in Adger and Rhys forthcoming, it is argued that a more explanatory analysis of the distribution of prepositions in Chinese is achieved without reference to Case.

4.2 Thematic Mediation

The notion of thematic mediation¹ is developed in Adger and Rhys forthcoming to explain the appearance of the preposition *of* in nominal but not in verbal gerunds, as in:

- (4.1) a. Sarah's constant painting of pictures
 b. Sarah's constantly painting pictures

The idea stems from the proposal put forward in Grimshaw 1990 that argument structure and thematic structure are independently specified in the lexicon². Argument structure, here, encodes the syntactically realised participants of a lexical root. It can be viewed as the formal valency requirement of the predicate. Following Grimshaw, it is organised hierarchically on the basis of independently specified thematic and aspectual hierarchies. Arguments enter the syntax via the percolation of the argument structure through the tree, as argued for in Higginbotham 1985. The arguments do not give any semantic information about the role of the participants in the event denoted by the predicate, this is given by the thematic structure. The thematic structure represents information about the semantic role of the participant, such as ⟨Agent⟩, ⟨Patient⟩. This relates to the notion of Lexical Conceptual Structure (LCS) discussed among others by Hale and Keyser 1986, Zubizarreta 1987, and Grimshaw 1990. Note that the thematic structure of a predicate may represent more participants than are represented in the argument structure. So for example, in the lexical representation of the predicate *cut*, there are only two arguments positions in the argument structure (to be realised as subject and object)³, while the thematic structure includes at least ⟨Agent⟩, ⟨Patient⟩ and ⟨Instrument⟩.

Although the number of distinct levels of representation in the lexicon is the same in both Grimshaw's approach and in Adger and Rhys 1991, the two approaches differ in their assumptions about the interaction between the lexical representation and

¹The work described in this section was carried out in collaboration with David Adger.

²A distinction between argument structure and thematic information is also assumed by Dowty (1991), although his approach to thematic structure differs greatly from the approach taken here.

³In fact, it may turn out that subjects are different not because they are highest on the argument structure but because they are not represented in the argument structure of a predicate and must therefore always be mediated by an independent functional head. In this case, the argument structure of the predicate *cut* would have only one position. This is left as a question for future research.

syntax. Under Grimshaw's approach thematic information is involved in deriving the hierarchical prominence relations of argument structure, but its influence is purely lexical. It can only affect the syntax indirectly via the position in the argument structure to which it is related. In other words, thematic role labels and any contentful notion of thematic role are claimed not to play a role in syntax. In our system, thematic roles are lexically associated with an argument, but can only be assigned to it once the argument has been discharged in the syntax⁴. In other words, thematic roles are assigned in the syntax independently of arguments. The Theta Criterion is extended to capture this separation of argument structure and thematic role assignment. We take as our starting point the Generalised Theta Criterion of Grimshaw 1991a which takes into account the fact that we are dealing with extended projections and not just maximal projections:

(4.2) **Generalised Theta Criterion (GTC)**

- a. every maximal projection must either
 - i. receive a role or
 - ii. be part of an extended projection that receives a role

This definition is generalised to apply to adjuncts and matrix clauses, as well as to specifiers and complements. All meet the theta criterion by being assigned a semantic role. The important semantic roles here are thematic roles. We extend this definition to be more precise about the distinction between arguments and thematic roles by adding the following clauses to take in to account arguments⁵:

(4.3) **Extended Generalised Theta Criterion (EGTC)**

- a. every maximal projection must either
 - i. receive a role or
 - ii. be part of an extended projection that receives a role
- b. thematic roles are assigned to discharged arguments
- c. every selected satellite⁶ must be uniquely associated with an argument
- d. every argument must be uniquely associated with a selected satellite

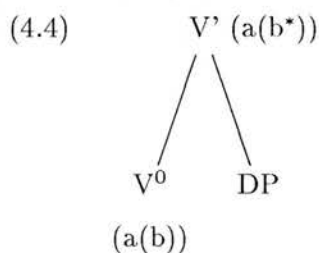
⁴This is similar to the distinction between Case assignment and Case realisation.

⁵Note that clauses c and d are essentially the standard Theta Criterion as in Chomsky 1981

⁶The term satellite is intended to encompass both complements and subjects.

What the EGTC says is that thematic roles cannot be assigned directly to a DP in complement or subject position, but must be assigned indirectly via an argument position that is already licensed in the syntax. This separation of argument structure and thematic information beyond the lexicon is crucial to the development of the notion of thematic mediation. Thematic roles are thus assigned to arguments. But how are arguments mapped from the argument structure representation in the lexicon into the syntax?

Adopting the approach of Higginbotham 1985, the argument structure of a head is assumed to project up through the tree to license DP satellites. When a lexical DP is licensed by an argument from the argument structure that argument is said to be *discharged*. Higginbotham notates this with an asterisk:



This system of argument realisation is constrained by a version of the visibility requirement:

(4.5) **Visibility**

Arguments that are saturated by nominal satellites must be discharged in Case marked positions.

The definition of Visibility here refers specifically to nominal arguments, but presumably can be generalised to a requirement that all arguments be formally licensed in the appropriate way. This version of Visibility assumes a distinction between Case marking and Case realisation, where Case marking is a property of D-Structure and Case realisation a property of some higher level. Hence Visibility is a condition on the lexical insertion of arguments. In a derivation in which an argument is saturated by an DP, that argument must be realised at D-structure in a position governed by a Case marker, ensuring that the DP is assigned Case. An interesting consequence of this framework is that there are no longer non-Case-marked theta-marked positions at D-Structure and therefore no need for NP movement. Since an argument can not be realised in a non-Case-marked position, it will project up through the tree until it reaches a Case-marked

position where it is discharged (cf. Williams 1987). This immediately raises interesting questions as to the different properties of argument percolation versus movement. We return to this in the following chapter.

The important feature of this system is that the separation of argument structure and thematic roles allows for the possibility that an argument position might be saturated by an element other than the selected XP complement. In this case the thematic structure is still active but the only way that the thematic role can be assigned is via thematic mediation. The thematic mediator is a head that has an argument position but does not have an independent thematic role to assign. Under the appropriate configurational constraints, it can therefore supply its empty argument position to the thematic structure of the lexical head. We can illustrate this with a summary of the Adger and Rhys forthcoming analysis of complement marking in nominal gerunds.

4.2.1 Nominal gerunds in English

The system of complement marking in English gerunds provides an example of how a functional head can play a part in the assignment of a thematic role of a lexical head to its complement. The specific problem to be addressed in the analysis of gerunds is that the same linguistic form (the *-ing* form) can license either nominal or verbal complement marking:

(4.6) Jo's devouring of cakes

(4.7) Jo's devouring cakes

Part of the goal of the analysis of gerunds is to explain the appearance of the preposition *of* without resorting to a disjunctive lexical specification either for the nominalisation or for the inflection *-ing*⁷. This is achieved by exploiting a highly modular approach to morphosyntactic combination; one which retains the morphological component of the grammar as an independent module. In other words, the word formation component of the grammar is assumed to be independent of any syntactic operations, which simply provide the appropriate configuration to which the morphological rules then apply (see

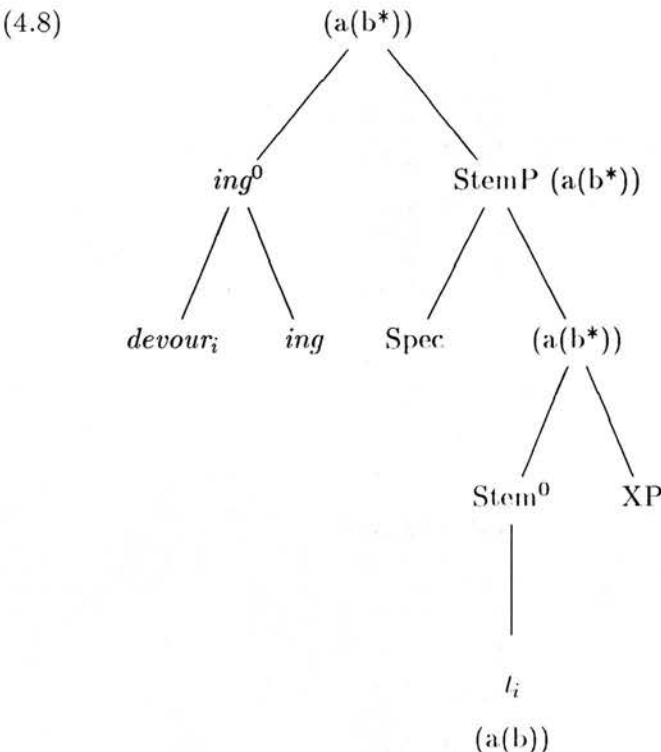
⁷The analysis was also developed under the theoretical constraints imposed by the theory of extended projection; in particular, the constraint that categorially mixed projections are illegitimate. This is satisfied by syntactic underspecification, however the details of this aspect of the analysis are not relevant here.

section 2.3.3). As such, the word formation rules may also apply to create words that are fully formed by D-structure, ie. before lexical insertion.

The precise claim is that the categorial ambiguity of the gerund is a consequence of the different levels at which word formation might apply. Either the stem and the affix project independently into the syntax before the application of word formation rules, or they first are combined by the word formation rules and then project into the syntax as a single head.

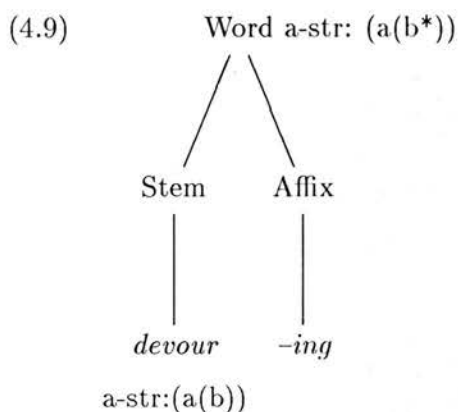
Lexical insertion of the stem and the affix as independent projections which combine syntactically will yield the gerund with verbal properties. The stem is inserted with its argument structure into the syntax in the same way as happens in the ordinary finite verb phrase. In this case, the internal argument of the verb is discharged in the Case marked complement position, satisfying Visibility. The assignment of the internal thematic role to this Case marked argument is now licensed via the EGTC. The affix *-ing* is generated as a functional head immediately dominating the lexical stem which, by the Stray Affix Filter⁸, triggers head to head movement of the stem into the affix. This produces an X^0 adjunction structure to which the word formation rules then apply. This derivation is illustrated in the following tree structure:

⁸The Stray Affix Filter is perhaps derived from the morphological subcategorisation frame of the affix.



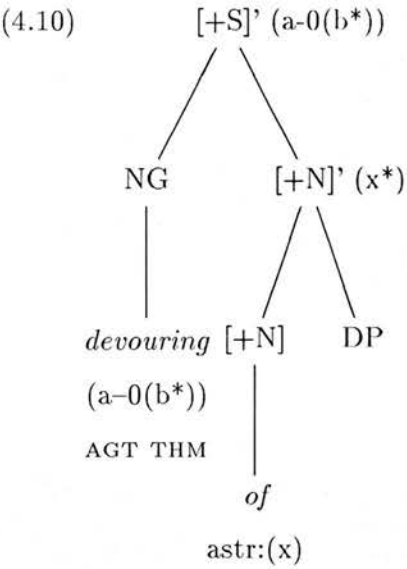
In this tree, the argument structure of the stem *devour* projects through the tree from the D-structure position of the stem, which moves to adjoin to the affixal head *-ing*. The internal argument is discharged in the complement position of the stem, as indicated by the asterisk. In this way, the word formation rules do not have any influence on the licensing of complements.

In the case of the nominal gerunds, the stem and affix combine before lexical insertion. As such the lexical specification of the stem is accessible to the word formation process. The c-selectional properties of the stem cannot be satisfied as a consequence of the fact that X-bar theory does not hold. Higginbotham's mechanism of argument discharge, however, is assumed to be operative. The claim is that when the stem and the affix combine pre-syntactically, the affix *-ing* saturates the internal argument of the stem in the following way:



Thus where the gerund is formed pre-syntactically, the internal argument is saturated before lexical insertion, but the thematic structure and the selectional properties remain active. At this point the independence of thematic role and argument structure becomes relevant, because crucially the saturation of the internal argument in the word formation component does not affect the associated thematic role. However, although the internal thematic role is still available, it cannot be directly assigned to the complement, since by the EGTC it must be assigned via an argument. This is where the notion of *thematic mediation* applies.

Thematic mediation is a process by which a functional head which has an argument position but no thematic structure, forms an extended projection with the complement of the stem. The available thematic role of the stem is assigned to the argument of the functional head and hence by the EGTC, and extended projection, to the whole complement projection. Given the Extended Generalised Theta Criterion, this process of thematic role mediation will only arise where a complement cannot be assigned a thematic role via the argument structure of the stem. It is interesting that it is precisely in constructions like these that Grimshaw 1991a argues that the preposition may form an extended projection with its sister. This suggests that thematic mediation is restricted to apply within extended projections. The appropriate configuration is as follows:



In this structure c-selection is satisfied by the $[+N]$ complement, and the preposition *of* within that $[+N]$ complement ensures that Visibility is satisfied in that it Case marks the DP. More importantly the EGTC is satisfied because the internal thematic role of *devour*, the \langle Theme \rangle , can be assigned via the argument that is supplied by the preposition *of*. Note that, given the EGTC, functional prepositions like *of* can only appear as a complement to a head that will supply a thematic role to the argument of the preposition, as the preposition itself has no thematic role to assign.

4.2.2 Thematic Mediation and functional projections

The idea of thematic mediation falls under the general research programme, discussed in the previous chapter, in which the surface properties of an individual language are assumed to be a consequence of the lexical specification of the functional heads in the “syntactic lexicon” of the language. A thematic mediator as a non-thematic head is a functional category that influences the surface position of the complements of a lexical head. Much of the current literature on functional projections has focused on morphologically complex agglutinating languages in which the functional heads encode the inflectional morphemes of the language. As a language without inflection, Chinese clearly will not have functional heads of this nature. On the other hand, as a language with semi-free word order, the proposal here is that much of the functional lexicon of Chinese might fall under the category of thematic mediator. Under this hypothesis, we would expect to find a range of preposition-like heads, which do not add thematic

content to the clause, but affect the surface order of the nominal elements in the clause. The following section investigates some of the constructions that confirm this hypothesis.

4.3 Thematic Mediation in Chinese

This section reconsiders Li's data involving prepositions, which seemed to offer the most convincing evidence for the relevance of Case in Chinese. It is argued that a reinterpretation of prepositions in Chinese as functional elements involved in thematic role assignment, ie. in terms of thematic mediation, is more appropriate than an analysis in terms of Case assignment, and has better empirical coverage.

4.3.1 Thematic Mediation in the verbal projection

The claim in this section is that verb reduplication, the *ba* construction and coverb constructions are all, in some sense, instances of thematic mediation. What all these constructions have in common is that they utilise the same structure and they all mediate thematic roles from the thematic structure of the verb. The differences in behaviour between these constructions relate to the different lexical representations of the thematic mediator and the effect that this has on their interaction with the thematic structure of the verb. The following are examples of each of these constructions:

- (4.11) wo qi ma qi de hen lei.

I ride horse ride *de* tired
'I rode and got tired.'

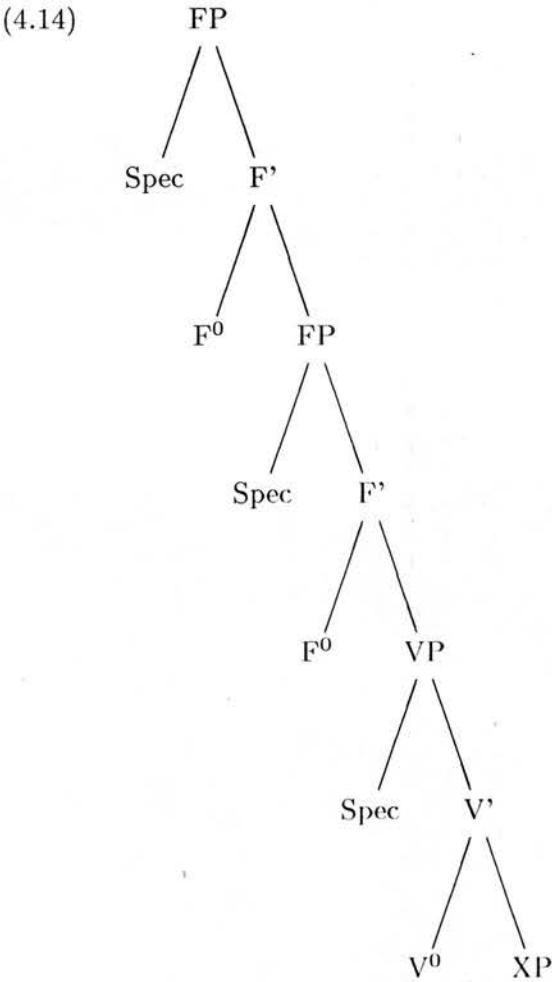
- (4.12) wo ba ma qi de hen lei.

I *ba* horse ride *de* tired
'I rode the horse got it tired.'

- (4.13) a. ta cong zhongguo hui lai.
 she from China return come
 ‘She’s coming back from China.’
- b. ta dao zhongguo qu.
 she to China go
 ‘She’s going to China.’
- c. ta yong zhongguohua gei wo shuo gushi.
 she use Chinese give me say story
 ‘She tells me stories in Chinese.’

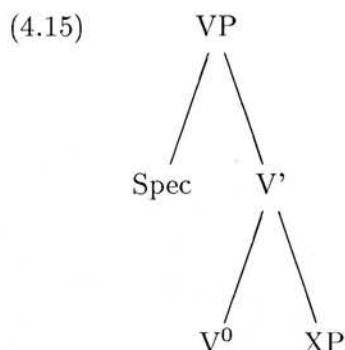
The example in (4.11) illustrates verb reduplication, where the verb is reduplicated and the first instance of the verb (the copy) licenses the internal argument of the verb. The *ba* construction in (4.12) also involves licensing of the internal argument of the verb, but with a different interpretation. This construction is discussed in great detail in the next chapter. Lastly, the examples in (4.13) are all examples of coverb constructions. The proposal here is that coverbs in Chinese are involved in the licensing of both core and non-core thematic roles (cf. ‘thematic adjuncts’ in Speas 1990). The structure involved for all of these constructions is proposed to be a verbal extended projection in which the coverbs, *ba* and the reduplicated verb are all functional heads (ie. non-thematic role assigners). This yields a structure that is reminiscent of Larson’s VP shell structure, particularly in the case of the verb reduplication which involves a copy of the matrix verb in the mother VP shell to license the argument in the specifier position of the matrix (lexical) verb (Larson 1988)⁹. The basic structure involved is thus as follows:

⁹Note this is the extent of the similarity of this approach with Larson’s. Larson’s VP shells are proposed to account for double object constructions, in which the internal arguments of a ditransitive verb are generated in the complement position and the specifier position of the lower (lexical) verb. Verb movement from the lower V^0 position to the higher empty VP shell is then triggered to license the indirect object in the specifier position of the lower verb.



In the account of thematic mediation proposed for English, argument discharge was constrained by the Visibility requirement that arguments be discharged in Case marked positions. A consequence of this was that the argument structure of a head percolates up the tree until it hits a Case position. In the Chinese structure, Visibility simply requires that an argument be head governed. With the exception of ditransitive verbs, both lexical and functional heads will have at most two argument positions. Since these can be directly head governed in the complement and specifier position of the head the argument structure will not percolate beyond the perfect projection, that is the maximal X-bar projection of X^0 : XP. In other words, the specifier position and the complement position of heads are always formally licensed. This is not sufficient however to license thematic role assignment to these positions. The EGTC requires that thematic role assignment always take place via argument structure, while Visibility requires that

each argument in the argument structure be formally licensed. The simplest case is that of a transitive verb where these different mechanisms of licensing all coincide: the verb has two arguments which are discharged and formally licensed in its specifier and complement positions. Assignment of its two thematic roles is thus directly licensed in these positions. In other words, the minimal structure required for the licensing of the thematic structure of a transitive verb, is the perfect projection of the verb¹⁰:



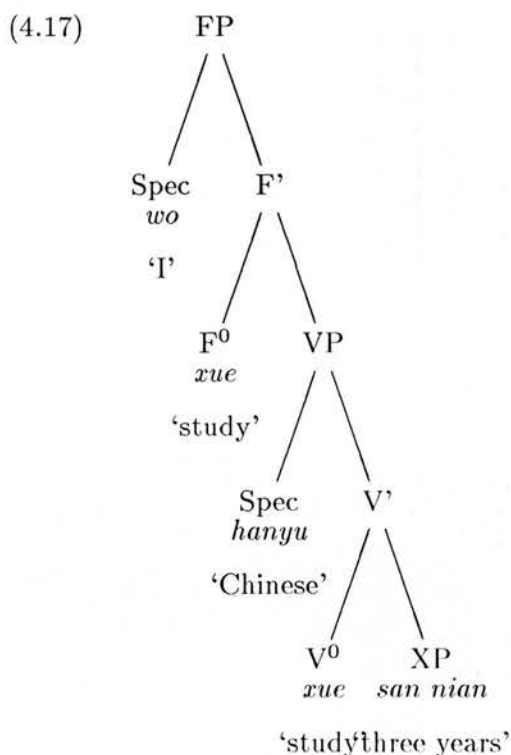
Where another constituent appears postverbally, the complement of the verb must precede the verb and further structure is required to license the thematic structure. For example, in the following sentence a complement of duration appears postverbally, and verb reduplication is required to license the direct object of the verb:

- (4.16) wo xue hanyu xue le san nian le.
 I study Chinese study *le* three years *le*
 'I've been studying Chinese for three years now.'

Since the internal argument of the verb is still directly licensed in the postverbal position, an additional head is required in order that both thematic roles can be assigned preverbally¹¹. The structure via which this preverbal licensing of the direct object takes place is that in (4.14):

¹⁰This thesis does not really address the problem of subjects. The subject of a predicate is represented in the thematic structure of the predicate, but it is not clear yet whether it is also represented in the argument structure of that predicate. In fact, it may turn out that there is an additional level of structure, *predication structure* involved in the licensing of subjects.

¹¹It remains unclear whether the postverbal durational complement is actually in the complement position saturating the internal argument or not. If this is the case, then the fronting of the direct object might be explained by this argument saturation. However, such an explanation incurs a number of both theoretical and empirical problems. For example, it would entail that selectional features be treated as features of the associated thematic role, rather than holding independently under a particular configurational relationship. Without a more explicit theory of selection, it is not clear which is the most appropriate mechanism. In the structures given the durational complement is shown in complement position, however not too much should be read into this aspect of the structure.



In this structure, the first instance of *xue* is a functional head derived from the lexical head. As a functional head, it can only project the features of its complement. It loses its selectional properties and is restricted to appear as an extended head of an extended projection dominating a lexical head. The thematic structure of the verb is also suppressed¹². Nonetheless, as a head, it still formally licenses its specifier and the VP in its complement position. More importantly it retains its argument structure, and can therefore mediate the thematic structure of its lexical complement. The internal argument position of the functional head is required by Visibility to be formally licensed. This requirement is satisfied by discharging the argument in the specifier position of its complement, so that it is head governed by the head of its complement. In other words, the ⟨Theme⟩ on the thematic structure of lexical *xue*, is assigned to the internal argument of functional *xue* which in turn is formally licensed in the specifier position of lexical *xue*.

¹²This is perhaps directly as a consequence of its losing its selectional properties, in which case it provides support for the suggestion that selectional features and thematic structure are directly associated.

Coverbs as thematic mediators

The structure given above for verb reduplication and the mechanisms for licensing also apply in coverb constructions. Coverbs are used in Chinese to license a range of optional arguments and adverbial phrases. The claim here is that even where the coverb licenses an adverbial phrase it is still assigned a thematic role by the matrix verb. The difference with coverb constructions is that the thematic roles mediated by the coverb are mostly non-core thematic roles, and hence completely optional. The set of coverbs divides into coverbs that can also function as matrix verbs and those that never function as main verbs. The former set of coverbs are derived from their lexical counterparts in the same way as described for the verb reduplication instance. Where more than one coverb is used, an iterating VP shell structure is generated as in the structure in (4.14), where F^0 is realised by a coverb. As well as providing argument positions via which thematic roles of the lexical head can be licensed, coverbs function as identifiers in that different coverbs serve to license different semantic roles. This suggests that although the coverb cannot independently assign a thematic role, it nonetheless carries thematic information. One possible approach to the thematic content of coverbs is to argue for an association between selection and direct thematic role assignment. The argument would be that the thematic structure of the coverb cannot be independently assigned because the coverb does not select. The basic idea of such an approach is that since the thematic structure of the coverb cannot be assigned to a selected satellite, it can only be assigned via identification with a thematic role of the lexical head.

The analysis of these adverbial coverb constructions as functional heads rather than as independent adverbial PPs provides an explanation for the fact that their position is fixed in the sentence. An adverbial licensed by a coverb cannot be topicalised, whereas, for example, a temporal adverbial in topic position is grammatical:

- (4.18) *mingtian* *wo qu beijing.*
 tomorrow I go Beijing
 ‘Tomorrow, I’m going to Beijing.’

- (4.19) * *yong kuaizi* *tamen chi fan.*
 use chopsticks they eat rice

Whether the topic is viewed as directly generated in topic position, or derived by mo-

vement, this fact follows from the analysis given here. Firstly, functional heads are only licensed in relation to a lexical head, they cannot be generated independently. This follows from the fact that they do not have any selectional properties. Hence the coverb could not be independently generated in the topic position. Nor can (4.19) be derived via extraction, since under this analysis of the coverbs as functional heads, the apparent object of the coverb does not actually form an independent constituent with the coverb for extraction purposes. The actual complement of the coverb is the whole VP.

The claim that adverbials licensed via a coverb are assigned a thematic role by the verb, and are licensed in the same way as preverbal complements of the verb leads to an expectation that they should in some respects pattern with arguments rather than with adjuncts. This expectation is realised in the interaction of adverbials with the A-not-A question form. Ernst 1991 shows how the set of adverbials divides into those that block the A-not-A question form and those that do not. Ernst's data is the following:

- (4.20) a. *ni zai nar chi-bu-chi rou.*
 you at there eat-not-eat meat
 'Do you eat meat there?'
- b. *ni yong kuaizi chi-bu-chi fan.*
 you use chopsticks eat-not-eat rice
 'You eat with chopsticks.'
- c. *zhejiang shi cong zhengzhi-shang de jiaodu xing-bu-xing?*
 this matter from politics-on *de* angle OK-not-OK
 'From a political point of view, is this matter ok?'
- d. *ni gei ta mai-bu-mai xianglian.*
 you give him buy necklace
 'Are you buying a necklace for him?'

- (4.21) a. *ta luan fang-bu-fang dongxi?
 she chaotically put-not-put things
- b. *ta xianran qu-bu-qu?
 she obviously go-not-go
- c. *laoban yanli de ze-bu-zebei ta?
 boss stern *de* acc-not-accuse him
- d. *ta turan you-mei-you xinglai?
 he suddenly have-not-have wake up
- e. *ni yinwei nide pengyou de yaoqiu qu-bu-qu?
 you because your friend *de* demand go-not-go

Ernst builds an account of this data based on the claim that the difference between the two sets of adverbs is that the adverbs in (4.20) are more argument-like because they are theta marked. Note that the set of argument-like adverbials all involve coverbs, so Ernst's explanation of the above facts concurs with the above analysis of the coverbs as thematic mediators.

Thematic mediators and argument structure

One question not yet addressed is whether the verb as a functional head retains the whole of its argument structure or has a reduced argument structure. The preposition like appearance of the functional verb would seem to indicate that it has only an internal argument. Evidence from the use of the verb *gei* ('give') as a functional verb, however, indicates that this is the wrong conclusion.

As a main verb *gei* is ditransitive:

- (4.22) wo gei ni sanben shu.
 I give you three books
 'I'll give you three books.'

As a coverb, it mediates a benefactive adjunct, as in:

- (4.23) ta gei wo mai le sanben shu.
 she give me buy *le* three books
 'She bought three books for me.'

- (4.24) *ta gei xuexiao ban le xuduo shiqing.*
 she for school deal with *le* many situations
 'She has done alot for the school.'

If verbs used as functional coverbs have a reduced argument structure, then we would expect *gei* to be able to mediate the benefactive thematic role of intransitive verbs. However, this turns out not to be possible. Beneficiaries of intransitive verbs are licensed by either *wei* ('for'), *ti* ('substitute') or *dui* ('to'):

- (4.25) a. **ni yingai gei wo qu.*
 you should give me go
 b. *ni yingai ti wo qu.*
 you should substitute me go
 'You should go for me.'
 c. *ni yingai wei wo qu.*
 you should for me go
 'You should go for me.'
- (4.26) a. **qing gei wo xiao.*
 please give me smile
 b. *qing wei wo xiao.*
 please for me smile
 'Please smile for me.'

One hypothesis might be that the ungrammaticality of (4.25a) and (4.26a) is a semantic incompatibility between the kind of benefactive encoded by *gei* and the meaning of the verb. This seems like an unlikely explanation given the following contrast:

- (4.27) a. **qing gei wo xiao.*
 please give me smile
 b. *qing gei wo xiao yixia.*
 please give me smile one bit
 'Please smile a bit for me.'

yixia in (4.27b) appears as a nominal complement to the verb *xiao* but has an aspectual interpretation in the sentence. In other words, it doesn't affect the interpretation of the

verb in any relevant sense. What it does do is make the verb superficially transitive. As a consequence, the use of *gei* as the benefactive marker is grammatical. This suggests that coverbs retain their full argument structure.

4.3.2 Locative expressions and *zai*

This section investigates in more detail the distribution of one coverb, the locative *zai*. It functions as a non-core thematic role mediator if it is generated in the preverbal adverbial position. It also licenses postverbal complements and can independently assign a thematic role. Since *zai* is used as a preposition that can assign its own independent thematic role, the prediction should be that it will appear in locative expressions under one of two circumstances. Either it will appear where a lexical head assigns a locative thematic role but there is no argument position already available in the structure to the which the locative thematic role might be assigned. Alternatively, it will appear as an independent adjunct PP to assign a thematic role to its complement.

Clear evidence for the interaction of *zai* with the thematic properties of the matrix verb is found in the following data involving topicalised locative phrases:

- (4.28) a. *zai zhuozi shang ta fang le naben shu.*
 at table on she put *le* that book
 ‘On the table she put the book.’
- b. *zhuozi shang, ta fang le naben shu.*
 table on, she put *le* that book
 ‘On the table she put the book.’
- (4.29) a. *zai di shang ta shui de hen hao.*
 at floor on she sleep *de* very well
 ‘On the floor she is sleeping very well.’
- b. **di shang, ta shui de hen hao.*
 floor on, she sleep *de* very well
 ‘On the floor she sleeps very well.’

In the examples in (4.28) the locative expression realises a core thematic role in the thematic structure of the verb *fang* (‘put’). In this case, the locative is licensed as an DP in the non-gap topic position. In (4.29) the locative is not a core thematic role of the verb *shui* (‘sleep’). In this case, *zai* is required independently to assign its own

thematic role. From this we can conclude that the non-gap topic structure involves an inherent argument in the topic position via which core thematic roles of the main verb can be mediated. One hypothesis about the obligatoriness of *zai* in (4.29) might be that non-core thematic roles have to be identified by a thematic mediator, however, it has been shown that other coverbs that mediate non-core thematic roles cannot be topicalised at all:

- (4.30) *yong kuaizi ta chi fan.
use chopsticks she eat rice

This indicates that where *zai* appears in the non-gap topic position, it is functioning not as a thematic mediator, but as a thematic role assigner. This is supported by the fact that the sentence initial locative has a different interpretation from the locative in preverbal position, in that it scopes over the whole sentence.

The contrast between these two verbs disappears when the locative expression appears in the preverbal modifier position. Since this is an adjunct position, it obviously will not have an argument from the a-structure of the verb or an inherent argument. It is therefore expected that *zai* will be required regardless of its thematic relationship to the verb. This is indeed the case¹³:

- (4.31) a. ta zai zhuzi shang fang le naben shu.
at table on she put *le* that book
'She put the book on the table.'

- b. *ta zhuzi shang fang le naben shu.
table on, she put *le* that book
'On the table she put the book.'

- (4.32) a. ta zai di shang shui de hen hao.
at floor on she sleep *de* very well
'On the floor she sleeps very well.'

- b. *ta di shang shui de hen hao.
floor on she sleep *de* very well
'On the floor she sleeps very well.'

¹³(4.31b) is marginally accepted with heavy contrastive stress. However, this is argued to involve thematic assignment to an argument of the verb in Spec VP licensed via head government and identified by prosody, and therefore does not bear on the claims being made here.

In (4.32) *zai* mediates a non-core locative thematic role from the thematic structure of the verb, reflecting the different scope from the locative in topic position. In (4.31), on the other hand, *zhuozi shang* is assigned a core thematic role by the verb *fang*, however since the locative expression is in a non-argument position *zai* is still required as a thematic mediator to supply an argument position via which the thematic role can be assigned.

4.3.3 Unaccusatives and locatives

Does the same analysis of *zai* throw any light on the more complex question of the occurrence of *zai* in locative expressions with unaccusative verbs? Li assumes that the locative expression in an unaccusative verb is an adjunct that can move into the subject position at S-structure for Case on the assumption that these verbs do not theta mark their subject positions. Not only does this constitute an instance of improper movement (Chomsky 1981), closer inspection of the interpretation of these verbs suggests that this ignores one important property of the locative expression, namely that it is an obligatory argument of the verb.

The relevant data is the following where the unaccusative appears to have only a postverbal subject:

- (4.33) you gui
 have ghost
 'There are ghosts here.'

- (4.34) zhan yige ren
 stand one person
 'There was a person standing there.'

Although the only overt argument here is the ⟨Theme⟩, these sentences must be understood as referring to a specific place mentioned in the immediately preceding discourse. This suggests that Chinese has an empty locative pronoun as well as empty personal pronouns. More importantly it also provides evidence that the locative thematic role is obligatorily assigned by the verb. We would therefore predict that *zai* will only appear with an unaccusative verb in non-argument positions. Locative expressions in both non-gap topic and subject position, and in modifier position, support this prediction.

Firstly, in topic position the locative is licensed without *zai* where it is accompanied by the marked non-gap topic intonation (represented here by the comma):

- (4.35) shu xia, nage ren zhan zhe.
 tree under, one person stand PROG
 'Under the tree that man is standing.'

This is what we would expect, given that the non-gap topic position is an inherent argument position as argued above. The locative is also licensed without *zai* via an argument in subject position¹⁴:

- (4.36) shu xia zhan zhe yige ren.
 tree under stand PROG one person
 'Under the tree stands a man.'

Thematic mediation also correctly predicts that where the locative appears in the preverbal adjunct position *zai* is required as a thematic mediator as discussed above for (4.31):

- (4.37) *nage ren shu xia zhan zhe.
 one person tree under stand PROG
- (4.38) nage ren zai shu xia zhan zhe.
 one person at tree under stand PROG
 'That man is standing under the tree.'

What the system of thematic mediation does not predict is the obligatory occurrence of *zai* when the locative appears in object position and in the gapped topic position:

- (4.39) a. *nage ren zhan shu xia.
 one person stand tree under
- b. nage ren zhan zai shu xia.
 one person stand zai tree under
 'That man stood under the tree.'

¹⁴Note this is not the same as claiming that the locative argument is the external argument of the verb. In the lexical representation of the verb it has two thematic roles to assign but these are not linked to the a-structure of the verb, hence neither one is an external argument

- (4.40) zai shu xia nage ren zhan zhe.
 zai tree under one person stand PROG
 ‘Under the tree that man is standing.’

What this suggests is that the assignment of thematic roles to the argument positions of the lexical head has to take into account the position on the thematic hierarchy of the role being assigned. Moreover, although the thematic roles of the unaccusative are not inherently linked to either of the argument positions in the lexical representation of the verb, assignment of the thematic roles to the argument positions of the lexical head does take place lexically. This is in order to achieve priority of assignment to argument positions of the lexical head before the assignment in adjunct positions via thematic mediation. Adopting the hierarchy of Jackendoff 1972 and Foley and van Valin, Jr 1984 the <Theme> is lower down on the hierarchy, and so must be assigned first. If it is assigned to the argument in subject position, the argument in object position is no longer available to mediate a thematic role, so the locative thematic role must be mediated by a functional head (ie. *zai*)¹⁵. The problem with this kind of analysis is that it directly contradicts the approach in Grimshaw 1990, in which the hierarchical order of thematic roles can be reversed in the association with argument structure under the influence of the event structure. I leave this as an open question for future research.

The following section shows how the notion of thematic mediation sheds light on the distribution of prepositional phrases in the noun phrase

¹⁵An interesting related problem arises with the verb *lai* (‘come’), which is also assumed to be an unaccusative verb since it also licenses its subject postverbally. With *lai* a place noun is licensed as an DP in both subject or object position, a different thematic role is realised in each position:

- (4.41) a. xuexiao lai le yige ren.
 school come *le* one person
 ‘Someone came from the school.’
 b. yige ren cong xuexiao lai le.
 one person from school come *le*
 ‘Someone came from the school.’
 (4.42) a. nage ren lai le xuexiao.
 that person come *le* school
 ‘That person came to the school.’
 b. nage ren dao xuexiao lai le.
 that person to school come *le*
 ‘That person came to the school.’

Note that the different thematic roles are reflected in the use of different thematic mediators where they appear in the adjunct position.

4.3.4 Thematic mediation in the nominal projection

Data involving prenominal PPs is problematic for Li since she predicts that PPs are never licensed prenominally. Li proposes that the contrast in (4.43) is accounted for by Case Resistance, the prohibition against Case assigners appearing in Case positions. This explanation falls down in the face of the example in (4.44b & d), since there is no reason to assume that the Case marking properties of the two prepositions differ.

- (4.43) a. * *cong beijing de ren*
 from Beijing *de* person
- b. *cong beijing lai de ren*
 from Beijing come *de* person
 ‘a person from Beijing’
- (4.44) a. * *tade zhejiang shi de xingqu.*
 her this matter *de* interest
- b. *ta dui zhejiang shi de xingqu.*
 she toward this matter *de* interest
 ‘her interest in this matter’
- c. * *tade guojia de ai.*
 her country *de* love
- d. *ta dui guojia de ai.*
 she toward country *de* love
 ‘her love of her country’

What distinguishes the PPs in this data is their relation to the head noun. The PP in (4.43a) is a modifier of *ren* (‘person’). In both (4.44b) and (4.44d), on the other hand, the PPs are complements of the head noun. This suggests that there is a thematic explanation for the licensing of the PPs here. In particular, it suggests that (4.43a) is ungrammatical because it violates the EGTC. To show that this is the correct explanation for this data, it has to be shown that the prepositions *cong* (‘from’) and *dui* (‘to, against’) do not independently assign a thematic role to their complements. This is convincingly shown to be the case by the ungrammaticality of PPs headed by *cong* or *dui* used predicatively:

(4.45) *ta cong beijing.

she from Beijing

(4.46) *ta dui wo.

she against me

This data shows that these prepositions, unlike their English equivalents, cannot independently assign a thematic role. If these prepositions do not independently assign a thematic role, then it seems likely that they are functioning as thematic mediators, licensing thematic roles from the thematic structure of an associated lexical head. This expectation is borne out since under an analysis of *cong* and *dui* as thematic mediators, the above data falls out as a consequence of the EGTC as follows.

Under this approach nouns have no argument structure, since they can never directly license a complement. As for thematic structure, only some nouns have a thematic structure. The contrast in (4.43) is claimed to stem from the fact that the head noun *ren* ('person') has no thematic structure. Since a thematic mediator cannot independently assign a thematic role, *cong* can only appear in a projection with a lexical head that will supply a thematic role to its argument. *ren* has no thematic role to assign, so the example in (4.43a) violates the EGTC because *beijing* is not assigned a thematic role. This ungrammaticality is resolved in (4.43b) by the verb *lai* ('come') which assigns the appropriate thematic role to the argument of *cong*, satisfying the EGTC.

In the example in (4.44a), on the other hand, the head noun *xingqu* ('interest') does have a thematic structure; it assigns the thematic role <Theme>. However it has no argument structure via which to assign the thematic role, so it must be assigned via thematic mediation. The preposition *dui* and the functional head *de* act as thematic mediators supplying the arguments via which the thematic structure of *xingqu* is realised. Similarly in (4.44b), *guojia* ('country') is a complement of the noun *ai* ('love'), in other words it is assigned a thematic role by *ai*. Again, the noun itself has no argument position via which the thematic role can be assigned to the complement *guojia* ('country'). Projection of the non-thematic heads *dui* and *de* extends the perfect projection of the lexical head to license its thematic structure ensuring that the EGTC is satisfied.

An apparent counterexample to this analysis of PPs in the noun phrase arises with the use of the locative preposition *zai* which appears to be licensed even with head nouns

that do not have an independent thematic structure:

- (4.47) *zai shuozi shang de shu*
 at table on *de* book
 ‘the book which is on the table’

This data appears to contradict the analysis given above, in that the head noun *shu* cannot assign a thematic role to *shuozi shang* (‘table on’). How is it then that the PP *zai shuozi shang* is licensed? This apparent contradiction is a consequence of the categorial ambiguity of many of the Chinese prepositions, which can also be used as main verbs with independent thematic structures, hence the traditional term *coverb*. Thus *zai*, in contrast to *dui* and *cong* in the previous examples, can assign its own thematic role and so can be used both as a main verb or as a preposition¹⁶:

- (4.48) a. *ta zai xuexiao.*
 she at school
 ‘She’s at school.’
 b. *ta zai xuexiao gongzuo.*
 she at school work
 ‘She works at the school.’

In (4.48a) *zai* is functioning as a matrix predicate with its own independent thematic structure, whereas in (4.48b) it is a thematic mediator. Given this difference, it is not surprising that the PP in (4.47) is licensed, since *zai* can independently assigning a thematic role to its complement *shuozi shang* (‘table on’), and the EGTC is satisfied. Support for this analysis can be found in the use of the coverb *gei* which as a main verb is ditransitive and means *give*, whereas as a coverb it marks the benefactive:

- (4.49) a. *wo gei ni yiben shu.*
 I give you one book
 ‘I’ll give you a book.’
 b. *wo gei ni jiang ke.*
 I give you teach class
 ‘I’ll teach for you.’

¹⁶Whether *zai* is really a main verb here, or a predicative phrase with no copula, is not addressed. The important point is that it clearly has its own thematic role to assign

Used prenominally, *gei* cannot have the coverb benefactive interpretation, but must have its full verbal interpretation:

- (4.50) a. *gei ni de shu*
 give you *de* book
 ONLY 'the book that (I) gave you'
 NOT 'the book for you'

Furthermore, both *gei* ('give') here and *zai* can license negation. Given the distributional properties of negation discussed in the previous chapter, this shows convincingly that they are acting as a full lexical verb:

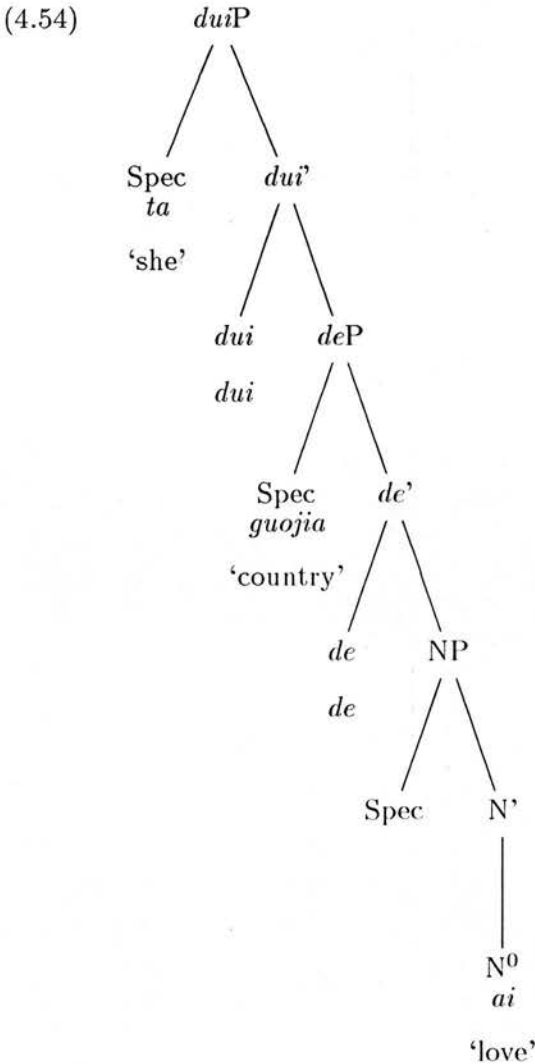
- (4.51) a. *mei gei ni de shu*
 not give you *de* book
 'the book that (I) didn't gave you'
- b. *bu zai shuozi shang de shu*
 not at table on *de* book
 'the book which is not on the table'

If we compare this with the instances of thematic mediation in the noun phrase, we find that negation is not licensed:

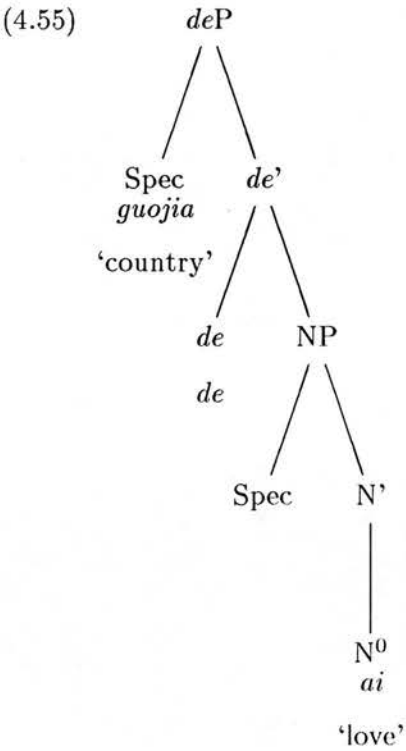
- (4.52) **ta bu/mei dui zhejian shi de xingqu.*
 she not toward this matter *de* interest

- (4.53) **ta bu/mei dui guojia de ai.*
 she not toward country *de* love

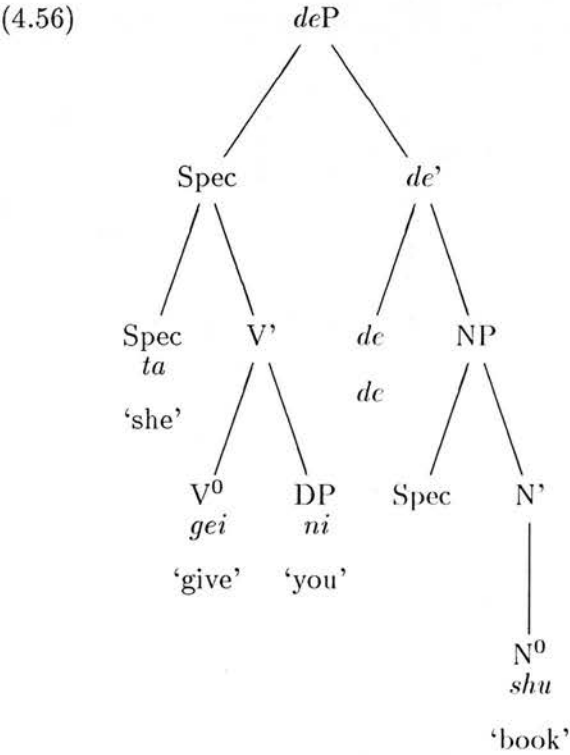
This difference in categorial status is reflected in a difference in structure for the functional head and the verbal thematic role assigning head. The structure for thematic mediation in the noun phrase patterns very much with that for thematic mediation in the verb phrase:



In this structure, the head noun *ai* has the thematic structure $\langle \text{Agent}, \text{Theme} \rangle$. Since the head noun has no argument structure itself, the thematic roles have to be assigned via the argument positions of independent functional heads. The functional heads projected to mediate the thematic roles are *de* and *dui*. *de* licenses an argument in its specifier position, to which the internal thematic role $\langle \text{Theme} \rangle$ is assigned. The discharge of thematic roles here follows the thematic hierarchy, assigning $\langle \text{Theme} \rangle$ before $\langle \text{Agent} \rangle$. The $\langle \text{Agent} \rangle$ thematic role is then discharged via the argument in the specifier position of the functional head *dui*. It follows from this structure that if only one of the thematic roles is to be assigned only *de* need be projected, as in the following structure:



By contrast, *zai* and *gei* assign their own thematic role and form an independent projection. This whole projection is licensed in the specifier position of the functional head *de*:



This structure captures the fact that projection of *zai* or *gei* prenominally is non-iterable:

(4.57) **zai wuzi li zai zhuzi shang de shu*
 at room in at table on de book

(4.58) **zai wuzi li de zai zhuzi shang de shu*
 at room in de at table on de book

Note that iteration via iteration of *de* is also not licensed. This is also to be expected given the prohibition against iteration of functional heads.

The difference in structure between (4.54) and (4.56) reflects the fact that the DP satellites of *dui* in (4.54) fall inside the thematic domain of the head noun. In other words, they are generated within the extended projection headed by the head noun, since thematic mediation is restricted to occur only within an extended projection. This has the added consequence that the major category feature of the thematic mediator must be assumed to be neutralised to avoid problems of category mismatch within an extended projection. The idea that functional prepositions are not specified for major category feature is independently proposed in Grimshaw 1991a. The availability of negation in (4.56) and not in (4.54), now falls out as a consequence of these different structures. In the case of (4.56) *gei* heads an independent verbal projection which can license negation, whereas *dui*, by virtue of being a functional head in a nominal extended projection acquires nominal features and cannot therefore support negation.

Thus, the licensing of PPs in nominal projections is a function of the interaction between the thematic properties of the head noun and the thematic properties of the preposition. Either the alleged preposition is actually functioning as a verb which independently assigns a thematic role to its complement, or the head noun must have a thematic structure via which the DP satellites of the preposition are assigned a thematic role. This requirement falls out from the combination of the notion of thematic mediation and the EGTC and successfully predicts the distribution of coverbs and prepositions in the noun phrase.

4.4 Conclusion

This chapter has explored the notion of thematic mediation: the idea that there are functional heads which serve to introduce into a structure extra argument positions via

which the core and non-core thematic roles of a lexical head are assigned. Thematic mediation was shown to be relevant in explaining the distribution of coverbs and prepositions in both the nominal and the verbal projection in Chinese, precisely because it captures the structural and thematic dependence of the coverb on the lexical head. In the next chapter, one particular construction involving thematic mediation is investigated in great detail. This is the *ba* construction, which is of extra interest because the functional head *ba* carries additional semantic properties which restrict its distribution and influence interpretation.

Chapter 5

The *ba* Construction

5.1 Introduction

The *ba* construction is a coverb construction which has received a great deal of attention within Chinese linguistics. The controversy surrounding *ba* concerns its thematic status and its relation to the matrix verb. On the one hand, it is argued to be a preposition, independently assigning a thematic role to its complement. On the other hand, it is claimed to be a dummy Case marker, inserted to license the fronted direct object of the verb. In this chapter, it is given an analysis in which it functions as a thematic mediator, parallel to the other coverb constructions. What distinguishes *ba* from the other thematic mediators is that it interacts with event structure via the hierarchy of aspectual roles proposed in Grimshaw 1990.

The *ba* construction in its simplest form is an optional mechanism for fronting the object of a transitive verb:

- (5.1) *ta sha le fuqin.*
 he kill *le* father.
 'He killed his father.'

- (5.2) *ta ba fuqin sha le.*
 he *ba* father kill *le*.
 'He killed his father.'

A set of constraints on *ba* restrict the application of *ba* fronting. These are generally described as an Affectedness Constraint and a Definiteness Constraint on the *ba* object, and an aspectual restriction on the VP out of which the object is fronted. *ba* also

interacts with the Postverbal Constraint, the syntactic constraint on word order that makes object fronting obligatory when another constituent appears in the postverbal position.

- (5.3) *wo ba ta mian le zhi.*
 I *ba* him cancel *le* job.
 'I fired him.'

- (5.4) **wo mian le zhi ta.*
 I cancel *le* job him.

- (5.5) **wo mian le ta zhi.*
 I cancel *le* him job.

Thus *ba* fronting is varyingly obligatory, preferred, optional and ungrammatical.

Previous analyses of the *ba* construction have focused on the question of whether or not the *ba* construction involves movement and whether or not *ba* itself is base generated. Under earlier assumptions in GB, the conclusion that the *ba* object was moved also forced the conclusion that *ba* itself was a semantically empty dummy Case marker inserted at S-structure. Previous analyses have therefore tended to concentrate on the properties of the movement operation and the contexts in which it was obligatory.

In the light of more recent theories of functional heads, *ba* can now be viewed as a base generated functional head with independent semantic properties but crucially no thematic grid. This is the approach taken in this chapter. The constraints on the licensing of the *ba* construction are examined as evidence of the semantic content of *ba*. In particular, *ba* is shown to relate to the aspectual hierarchy developed in Grimshaw 1990. In this way, an explanation is given for the constraints on *ba* fronting and the constructions that *ba* appears in are accounted for.

Before giving the analysis of the *ba* construction, some of the literature on the *ba* construction is reviewed. It is a topic of interest and controversy both among descriptive linguists working on Chinese, and among linguists working within the Government and Binding framework. Both these approaches are discussed and the insights arrived at by their proponents summarised. Grimshaw's theory of an independent aspectual hierarchy is then introduced, and it is shown how this sheds light on the relation between the Affectedness Constraint on the *ba* object and the aspectual restrictions on the associated

VP. The analysis is given in terms of Grimshaw's aspectual hierarchy, and it is shown how various constructions can be given an analysis in these terms, predicting differences in interpretation left unaddressed in previous accounts.

5.2 Previous analyses

5.2.1 Descriptive analyses

Communicative function

Li approaches the *ba* construction in terms of the Functional Sentence Perspective (Li 1971; Li 1977). She argues that elements in the Chinese sentence are arranged linearly in order of increasing information value. As such, the *ba* construction is a "mechanism for permuting the order of elements in a sentence to reflect their communicative value" (1977:8). What *ba* does is move the object of the sentence in to the rheme, leaving the verb and its 'complement' in the communicatively most prominent position. Unfortunately a functional approach such as this leaves unexplained the structural constraints that make *ba* either obligatory or ungrammatical in certain instances. For example, a structural constraint on *ba*, articulated by Wang 1987, requires that the VP following the *ba* expression consist of more than one syntactic unit. This is how the following sentence is ruled out:

- (5.6) * ni ba disange wenti jiang
 you *ba* third problem talk

In the Functional approach Li can only comment that

Apparently, a simple verb is not sufficiently weighty to warrant the prominence of this isolated (sentence final) position. It acquires sufficient weight by the addition of various complements, or, minimally, an aspect marker.

Not only does this provide no explanation for this restriction, the description is inadequate. Where an object is fronted by some means other than *ba* then it would seem that the verb is "sufficiently weighty". Thus (5.6) is ungrammatical, but where the same object is fronted via topicalisation the sentence is well-formed:

- (5.7) disange wenti ni jiang
 third problem you talk
 ‘You talk about the third problem.’

Related to this is the problem of non-referential *ba* objects which according to the functional perspective should not be licensed, since the *ba* expression appears in the theme. These problems do not falsify the functional approach, which clearly does offer some insight particularly into the optional use of *ba* fronting. Rather they illustrate that the constraints on *ba* cannot be completely reduced to a single function.

Disposal

The concept of ‘disposal’ to describe the *ba* construction was first introduced in Wang 1947, and subsequently adopted by many Chinese scholars, eg. Chao (1968); Li and Thompson (1981); Wang (1963). Sentences involving the *ba* construction are described as being in their ‘disposal form’ which Wang (1947) defines as follows:

The disposal form states how a person is handled, manipulated, or dealt with: how something is disposed of, or how an affair is conducted. Since it is specifically designed for disposing, the disposal form cannot be used unless the action possesses the quality of disposal. (1947: p.161)

This approach yielded lists of ‘disposal verbs’; verbs that might appear in the disposal construction. However it was also observed that, given certain modifications, non-disposal verbs could appear in the disposal construction and this led to a second list of the various modifications possible. Finally turning attention to the object of *ba*, it was observed that it had to be definite or specific.

Despite the generality of such an approach, many sentences fell outside of the definition of ‘disposal’ and these were described under the heading ‘a liberal use of the disposal form’:

Sometimes the disposal form does not really express any kind of disposing: it only shows that the matter at hand is the result of the influence of another matter.

These non-disposal uses of *ba*, Wang terms the *consecutive form*. This completely undermines any use that the notion disposal might have had in describing the *ba* construction,

since it now either expresses disposal or it doesn't.

Much subsequent work (Li and Thompson 1981; Song 1981; Wang 1984; Wang 1985) is devoted to extending the definition of disposal to include sentences that were previously disallowed. However broadening the definition to include the acceptable sentences meant that it also included unacceptable sentences. Other linguists worked on refining the notion of 'disposal' trying to capture the connection between disposal verbs and the kinds of modifications that licensed the appearance of non-disposal verbs in *ba* sentences. One such example is Li (1974) who attempts to tease out a set of necessary and sufficient features of the verb and the noun in the *ba* construction.

Li concludes that the verbs in the *ba* construction share the features [+Verb, +Transitive, +Action, +Anaphoric]. The notion of transitive here is extended to include a subset of resultative V-V compounds, namely those where the result is predicated of the object. Although Li gives no data here, this distinction was presumably intended to account for the following difference in acceptability:

- (5.8) *wo ba fan chi guang le*
 I *ba* rice eat empty *le*
 'I ate up the rice.'

- (5.9) **wo ba fan chi bao le*
 I *ba* rice eat full *le*
 'I ate the rice with the result that I was full.'

The feature [+Action] is required since not all transitive verbs license a *ba* construction. Hence in the following examples *xiang* used with the modifier *hen* ('very') means 'miss' and cannot be used with *ba* despite being transitive. Modified by *hen jiu* ('for a long time') however, *xiang* means something more like 'think about' and can be used with *ba* because according to Li with this interpretation it is an action verb.

- (5.10) **Houyi ba Change hen xiang*
 Houyi *ba* Change very miss
 'Houyi missed Change.'

- (5.11) *Houyi ba najian shi xiang le hen jiu*
 Houyi *ba* that matter think *le* very long.
 'Houyi thought about that matter for a long time.'

Li argues that it is this feature [+action] that explains the list of modifications described by Wang and others.

All of these so-called modifications around the verbs are just natural integral parts of the grammatical activities and manifestations of the action verbs, and actually only those modifications which define and characterise action verbs may occur. (p. 205)

The final feature [+anaphoric] is intended to differentiate the following two examples:

- (5.12) *ba yige zi xie le
 ba one character write le
 ‘(Someone) wrote a character.’

- (5.13) ba yige zi ca le
 ba one character erase le
 ‘(Someone) erased a character.’

Li defines anaphoric as follows:

When a verb is anaphoric in nature, it has in its semantic sphere of assumption a reference to certain object(s). With or without the overt object(s), there is the unmistakable understanding that usage of the verb presupposes and describes the action made on the whole or part of its object. (p.208)

This brings us neatly round to the object. This last feature, [+anaphoric], is actually a property of the relationship between the verb and its object. The *ba* construction therefore requires only that *at least* either the verb or the object be specified for the feature. This is reflected in the fact that (5.12) is in fact grammatical if the *ba* object is given a specific (ie. anaphoric) interpretation. Where it is a feature of the noun, the noun is defined as [+anaphoric] if

it has an antecedent in its immediate context, otherwise, its anaphoric status is present in the presupposition of the kind of verb in use. (p.215)

The other features required of the *ba* object Li lists as [+Noun, +Object, +Source]. The feature [+Object] Li points out has the same restrictions that [+Transitive] has, namely not all objects can be *ba* objects. The feature [+Source] is a modification of

the notion of Source in Fillmore 1968, where the source is a case NP which “answers as the object which the action of the verb affects”. Li extends this notion to include “any objects which have antecedents in the previous context, or which are assumed in the understanding of the verbs”.

Li’s work represents an attempt to refine the notion of disposal by breaking it down into a set of component properties. Unfortunately, what he does, in effect, is replace one vague semantic definition with a set of vague semantic definitions, some of which overlap. For example, the definitions of [Source] and [Anaphoric] appear to be almost identical. The use of features here is also misleading insofar as they are not part of a formal language in any sense, and there is no discussion of their interaction.

Transitivity

Wang 1987 argues against the usefulness of the notion of ‘disposal’ in describing the *ba* construction. He points out that while L. Wang’s definition was too restrictive, attempts to improve its coverage of the data have generally rendered it meaningless. Instead Wang proposes to use the notion of ‘transitivity’ to determine the semantic/discourse constraints on the *ba* construction. Adopting the Transitivity Hypothesis of Hopper and Thompson 1980, Wang’s basic proposal is that the *ba* construction is a highly transitive construction. The disposal interpretation, he argues, is “really a high degree of the affectedness of the verb upon the direct object”

The notion of transitivity is defined as “the carrying over or transferring of an action from one participant to another”. Hopper and Thompson identify a set of “parameters of transitivity” which permit a graded characterisation of transitivity. The transitivity of a construction is judged on the number of highly transitive features it has. Hopper and Thompson propose that the *ba* construction “must show an A behaving actively, volitionally, and totally upon a definite or referential O” and that it “must also be perfective”. With the following data, Wang shows that this is not necessarily the case:

- (5.14) boli ba tade shou ge po le
 glass *ba* his hand cut break *le*
 ‘The glass cut his hand.’

- (5.15) ta ba shu zhi kan le yi ban
 she *ba* book only look *le* one half

‘She only read half of the book.’

- (5.16) women bu neng ba pengyou dang diren
 we not can *ba* friend take-as enemy
 ‘We cannot take friends as enemies.’

- (5.17) ta zhengzai ba chuan wang shui li tui
 she now *ba* boat towards water in push
 ‘She is right now pushing the boat into the water.’

In the first example (5.14) the A, *boli* (‘glass’) is behaving neither actively nor volitionally, while in (5.15) it does not act totally upon the object. (5.16) shows that the object need not be either definite or referential, in this instance it is generic. Lastly the example in (5.17) provides evidence against the claim that a *ba* sentence must be in the perfective. Nonetheless Wang agrees with Hopper and Thompson’s intuition that the *ba* construction is a highly transitive construction but argues that their actual treatment of *ba* is “too simplistic” and “not comprehensive”.

Wang’s approach to the *ba* construction improves on the previous accounts in that it explicitly acknowledges that there are both structural and semantic/discourse constraints. The effect of these different types of constraints is that object fronting with *ba* is varyingly ungrammatical, optional, preferable or obligatory. Wang proposes two structural constraints; the VP Unit Constraint, and the Internal Object Constraint. The VP Unit Constraint refers to the requirement mentioned above that the VP following the *ba* expression consist of more than one grammatical unit. Wang points out that the constraint can be satisfied by either preverbal or postverbal modification:

- (5.18) guan men
 close door
 ‘Close the door!’

- (5.19) *ba men guan
 ba door close

- (5.20) ba men guan shang
 ba door close on
 ‘Close the door!’

- (5.21) ta ba men henhende yi guan
 she *ba* door harshly one close
 'She slammed the door.'

The Internal Object Constraint is aimed at capturing the distinction between optional and obligatory *ba*. An obligatory *ba* construction is one for which there is no corresponding SVO construction:

- (5.22) ta ba men ti le yige dong
 she *ba* door kick *le* one hole
 'She kicked a hole in the door.'

- (5.23) *ta ti le yige dong men
 she kick *le* one hole door

- (5.24) *ta ti le men yige dong
 she kick *le* door one hole

Wang's claim is that *ba* is obligatory when there is an internal object, so much of his analysis is devoted to establishing the properties of internal objects which he defines as follows:

By internal object, we mean an object other than the direct object which forms a semantic unit with the verb, ie. the object forms with the verb a unit which affects the syntactic direct object just as if it were a single transitive verb.

The internal object can be a nominalised verb (5.25), a prepositional object (5.26), a partitive object (5.27), or an idiom in which the direct object position is already saturated (5.28):

- (5.25) a. women yao fenxi womende cuowu
 we want analyse our mistake
 'We should analyse our mistakes.'
- b. *women yao jiayi fenxi womende cuowu
 we want give analysis our mistake
- c. women yao ba womende cuowu jiayi fenxi
 we want *ba* our mistakes give analysis
 'We should give an analysis of our mistakes.'

- (5.26) a. ta ba shu fang zai zhuo shang
 she *ba* book put at shelf on
 ‘She put the book on the shelf.’
 b. *ta fang zai zhuo shang shu
 she put at table on book
- (5.27) a. ta ba wuge pingguo chi le sange
 she *ba* five apple eat *le* three
 ‘She ate three of the five apples.’
 b. *ta chi le sange wuge pingguo
 she eat *le* three five apples
- (5.28) a. ba sheng si zhi zhi du wai
 ba life death put it outside mind
 ‘Give no thought to life or death.’

Wang observes that certain verbs that are subject to the Internal Object Constraint allow either one of their objects to be fronted¹:

- (5.29) a. ta ba shui jiao le hua
 she *ba* water spray *le* flower
 ‘She sprayed the water on the flowers.’
 b. ta ba hua jiao le shui
 she *ba* flower spray *le* water
 ‘She sprayed the flowers with water.’

Wang also notes that the Internal Object Constraint is not relevant to ditransitive verbs:

- (5.30) ba zhejian shi gaosu mary
 ba this matter tell Mary
 ‘Tell Mary about this.’
- (5.31) gaosu mary zhejian shi
 tell Mary this matter
 ‘Tell Mary about this.’

¹These are equivalent to the “loading verbs” in English

5.2.2 Approaches to *ba* within GB

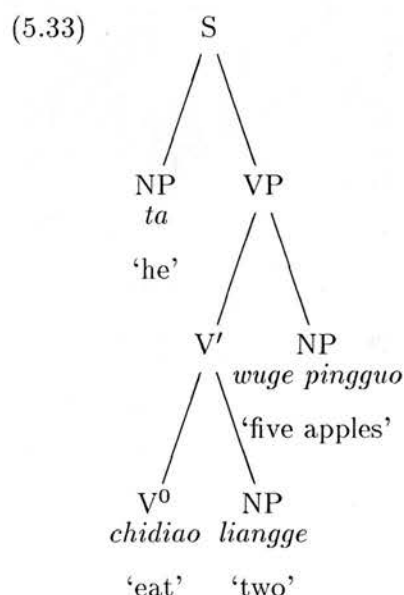
Interest in the *ba* construction within the GB community focuses on the syntactic properties of *ba* as a construction of non-canonical word order. There are two main questions addressed in the literature. One issue concerns the status of *ba*; is it base generated or is it inserted at PF as a dummy Case marker? The other principal issue is whether the non-canonical order is derived via movement. The various approaches to *ba* within the GB literature arise out of differing assumptions relating to one or other of these issues. Huang 1982b and Goodall 1987 illustrate movement accounts in which *ba* is assumed to be a dummy Case assigner inserted at PF. Li 1985 and Cheng 1986, on the other hand, take the opposing stance on both issues and argue for base generation of both *ba* and its object as a PP constituent. Huang 1991 also adopts a base generation approach to the *ba* object, but retains the analysis of *ba* as a Case marker. There are no accounts involving movement of the object and base generation of *ba* since it is assumed that this would be movement to a complement position and therefore in violation of the Projection Principle. In the following sections I will consider each of these analyses in turn and review the arguments for movement and base generation respectively.

Movement and PF insertion of *ba*

Huang (1982b) takes the stance that since the *ba* phrase surfaces in a non-canonical position, movement must be involved. His goal is then to explain why in some instances this seemingly optional movement rule becomes obligatory. In particular, the obligatory *ba* construction that he bases his account on is the so-called “retained object” construction, first studied by Lu (1955). In these constructions there is both a postverbal object and a *ba* phrase:

- (5.32) a. ta ba wuge pingguo chidiao le liangge.
 he *ba* five apples eat *le* two.
 ‘Of the five apples, he ate two.’
- b. ta ba juzi bo le pi.
 he *ba* orange peel *le* skin.
 ‘He peeled the orange.’
- c. ta ba zhimen ti le yige dong.
 he *ba* paper-door kick *le* one hole.
 ‘He kicked a hole in the door.’
- d. women ba ta dang shagua.
 we *ba* him treat-as fool.
 ‘We regard him as a fool.’

Huang adopts the structure for these examples posited by Thompson (1973) in which the postverbal “inner object” is generated in canonical complement position, and the *ba* object is generated as an “outer object”, sister to V' :



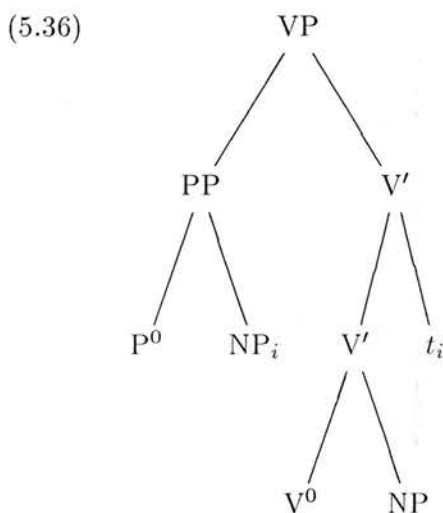
The outer object then obligatorily moves preverbally and *ba* is inserted in front of the outer object to Case mark it. Under this analysis, Huang argues that the obligatoriness of Move α in these instances falls under the independently motivated X-bar structure condition. This is essentially a language specific condition that stipulates that in Chinese lexical categories (other than N) are head initial whereas phrasal categories are all head final. Huang formalises this with the following X-bar rules

- (5.34) a. $[X^n X^{n-1} YP^*]$ iff $n=1$ and $X \neq N$
 b. $[X^n YP^* X^{n-1}]$ otherwise.

For this story to hold, Huang is forced to assume that the X-bar condition is a filter at PF, and that at this level the trace of the movement is no longer relevant. Thus movement of the outer object satisfies the X-bar condition by making V' head final at PF. *ba* is then inserted as a dummy Case marker. Huang argues that these constructions form evidence that not simply the Case Filter but also the X-bar condition is in operation since if the above structure were merely in violation of the Case Filter then it could be saved by insertion of *ba* between the inner object and the uncase-marked outer object. This, in fact, yields the ungrammatical order:

- (5.35) **ta bo le pi ba juzi.*
 he peel *le* skin *ba* orange

Huang does not address the status of *ba* itself, he assumes without motivation that it is inserted as a Case marker. In fact it is a necessary conclusion of his claim that the *ba* construction is an instance of Move α . Given the framework, base generation of *ba* would require an analysis in which *ba* was either a verb or a preposition. In either case, movement of the *ba* object would entail improper movement to a complement position:



Such a structure is not licensed because the moved NP cannot c-command its trace. *ba* therefore has to be inserted at PF so that it doesn't increase the depth of embedding of the moved NP.

Huang's assumption that instances of obligatory *ba* fronting should fall under some broader generalisation about word order is basically correct. In the so-called obligatory *ba* constructions it is not in fact *ba* that is obligatory, but merely a fronting operation of some kind, since the ill-formedness in these cases lies in there being more than one constituent in the postverbal position.

Huang's only argument against a base generation account of *ba* and for movement is that it leaves open the question of the non-occurrence of a grammatical non-*ba* counterpart to the retained object construction. By non-*ba* counterpart, Huang is referring to a construction in which the *ba* object appears in the canonical postverbal position for complements without *ba*. There is an obvious answer to this argument. Namely that if the X-bar condition (or some similar filter) were assumed to hold at D-structure, then only a derivation in which the outer object were generated preverbally would be licensed and the non-occurrence of the non-*ba* counterpart would be explained. The fact that the *ba* construction involves a non-canonical surface word order does not of itself constitute evidence that this non-canonical word order is derived by movement. More evidence is required to make this claim convincing.

This evidence is found in Goodall 1987. Goodall's basic premiss is that the *ba* construction involves canonical theta role assignment. His evidence for this comes from the following data involving resultative complements. Resultative complements are clauses occurring in the complement position licensed by the resultative particle *de*.

- (5.37) a. wo ku de Zhangsan hen shangxin.
 I cry *de* Zhangsan very sad.
 'I cried so much that Zhangsan was very sad.'
- b. wo ba Zhangsan ku de hen shangxin.
 I *ba* Zhangsan cry *de* very sad.
 'I cried so much that Zhangsan was very sad.'

Goodall's claim is that since the object of *ba* is not an argument of *ku* ('cry'), the *ba* construction cannot involve manipulation of the theta structure of the verb. Given this, an empty category is assumed to be in the canonical theta position:

- (5.38) wo ba Zhangsan ku de [e] hen shangxin.
 I *ba* Zhangsan cry *de* [e] very sad.

Once an empty category is posited the question is whether the relation between the overt NP and the empty category is one of movement or control. Control is rejected for two reasons. Firstly, in the simple *ba* construction it would involve PRO in object position:

- (5.39) *wo ba Zhangsan da le [PRO].*
 I *ba* Zhangsan hit le [PRO]
 ‘I hit Zhangsan.’

This is not licensed since by the PRO Theorem, PRO must not be governed. Secondly, the control relation is a relation between two theta positions, but in (5.38) *Zhangsan* is clearly not theta marked by either *ba* or the verb *ku*, as evidenced by:

- (5.40) **wo ku le Zhangsan.*
 I cry *le* Zhangsan
- (5.41) **wo ba Zhangsan ku le.*
 I *ba* Zhangsan cry *le*

Goodall therefore concludes that the *ba* construction involves movement. As for *ba* itself, Goodhall observes that base generation of *ba* as head of a PP would, in his system, involve movement to a complement position, thereby violating the Projection Principle. He concludes from this that *ba* is an inserted Case marker.

Goodall’s argument for a movement account of *ba* centres around the claim that the object of *ba* appears in data such as (5.38) to be an argument of a separate clause. Huang 1991, however, argues very convincingly that these resultative constructions are not biclausal. Rather the main verb and the verb of the result clause form a complex predicate of which the *ba* phrase is the object. This account is illustrated in more detail in the discussion of non-movement accounts of *ba*.

Further evidence in support of Huang’s claim and counter Goodall is that it does not seem to be possible to front the subject of other types of embedded clause:

- (5.42) a. *wo wen ni Zhangsan wei shenme sha le ta.*
 I ask you Zhangsan for what kill *le* him.
 ‘I’m asking you why Zhangsan killed him.’
- b. **wo ba Zhangsan wen ni wei shenme [e] sha le ta.*
 I *ba* Zhangsan ask you for what [e] kill *le* him.

It might be argued that movement is not licensed here because the embedded clause is a *wh*-island. However we find *ba* extraction out of a non-*wh* embedded clause is also not licensed:

- (5.43) a. *wo gaosu ni MeiYan bu xihuan tade nanpengyou.*
 I tell you MeiYan not like her boyfriend.
 ‘I’m telling you that Mei Yan doesn’t like her boyfriend.’
 b. **wo ba Mei Yan gaosu ni [e] bu xihuan tade nanpengyou.*
 I *ba* Mei Yan tell you [e] not like her boyfriend.

In both the accounts outlined above the primary issue is taken to be whether the *ba* construction involves movement. The status of the particle *ba* is only evaluated in relation to the assumption that movement is involved. In the following accounts the emphasis is just the reverse. It is the properties of *ba* that motivate the analysis of the construction.

Base generation accounts of *ba*

Li 1985 argues from the premiss that *ba* itself must be base generated. The motivation for this, she claims, is that the *ba* phrase appears to be a PP, both in terms of its independent semantic content and its structural properties. The semantic content refers to the disposal interpretation already discussed. The structural properties include the fact that it appears preverbally as do adverbial PPs, and that it shows the same effects as prepositions under coordination, as evidenced by the following data:

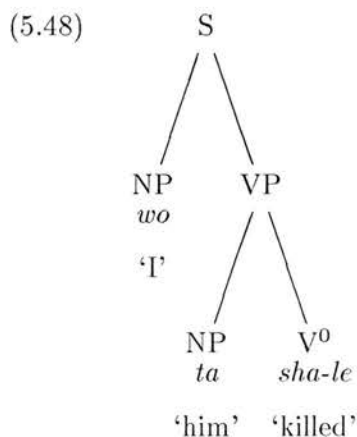
- (5.44) a. *tamen you changge you tiaowu.*
 they and sing and dance.
 ‘They sing and dance.’
 b. **tamen you changge you tamen tiaowu.*
 they and sing and they dance
 (5.45) ?*ni you wei ta you gen ta jie qian.*
 you and for him and from him borrow money.
 ‘You borrowed money both for him and from him.’
 (5.46) ?*ni you wei ta you ba ta qiang qian.*
 you and for him and *ba* him steal money.
 ‘You stole both for him and from him.’

The contrast in (5.44) illustrates that the coordinator *you* can only be used to coordinate like constituents. Although the subsequent examples with PPs are only marginally acceptable, the importance of these examples is that the *ba* phrase patterns with other prepositions such as *gen* ('from'), in other words (5.46), coordinating *ba* with the preposition *wei* ('for'), is no less grammatical than (5.45) in which *wei* is coordinated with another preposition *gen* ('from').

Given the assumption that *ba* is base generated, Li then questions whether the *ba* object moves into the complement position of *ba* or is base generated there. She observes that movement to the complement of a preposition is not licensed since the moved NP will be unable to govern its trace. The object of *ba* therefore must be base generated as the complement of *ba*. She also claims that *ba* cannot itself be a theta marker since, in the simple *ba* construction, the direct object of the transitive verb, presumably theta marked by the verb itself, appears as a *ba* object, as in (5.47):

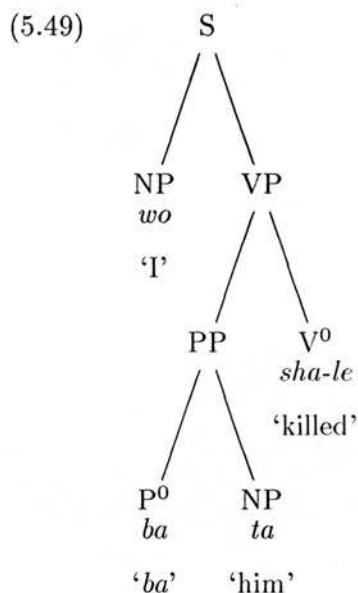
- (5.47) *ta ba Zhangsan da-le.*
 she *ba* Zhangsan hit.
 'She hit Zhangsan.'

How then are theta roles assigned in her system? Firstly it must be noted that Li assumes a system in which theta assignment is to the left, and Case marking to the right. Thus in an ordinary SVO construction the object is generated to the left of the verb as follows:



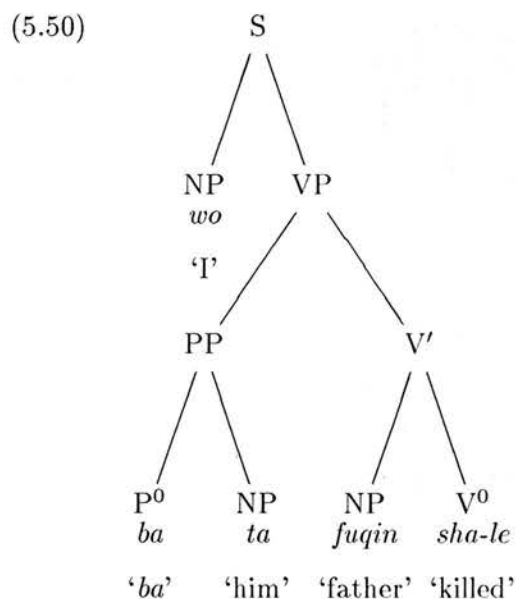
Since Case marking is to the right, the object is not Case marked in its D-structure position. It, therefore, moves to the right of the verb to be Case marked by the verb. To solve the problem of theta marking for the corresponding *ba* sentence, what Li proposes

is that the verb can assign its theta role either to a bare NP or to the *ba* phrase. Hence an alternative D-structure to the one above is:



In this structure, the theta role is assigned to the *ba* phrase. Since *ba* is also a Case marker, the NP is directly Case marked by *ba* in situ, so does not move.

In the case of the retained object construction, Li also adopts the notion of the “outer object” that is compositionally theta marked by V' , that is by the verb plus the “inner object”. Since theta marking is to the left in this system this yields the following D-structure:



The inner object then moves to the right of the verb for Case and the outer object is Case marked by *ba*.

Disagreement with Li's system as a whole aside (see chapter 3), the central problem for this account is the absence of any constraint on the generation of *ba*. In this analysis any nominal complement can be either a PP or an NP. The occurrence of *ba* is completely optional. Thus there is nothing to prevent the inner object from being Case marked by *ba* and the outer object moving to the postverbal position.

- (5.51) **ta ba pi bo le juzi.*
 she *ba* skin peel *le* orange

Similarly there is no constraint on iteration of *ba*, by which both the inner and the outer objects are generated as PPs with *ba*. Hence there is no way to rule out the following:

- (5.52) **ta ba juzi ba pi bo le.*
 she *ba* orange *ba* skin peel *le*

The absence of constraints on the projection of a complement as a PP headed by *ba* means that this account overgenerates with respect to the aspectual constraints on *ba* and the affectedness condition.

Control and complex predicates

Huang 1991 focuses discussion of *ba* on the data involving resultative complements. These are used by Goodall to argue for movement. The conclusion Huang draws, however, is the opposing one. He argues that these constructions show properties typical of control constructions rather than movement constructions.

Consider the following sentences:

- (5.53) a. *Zhangsan qi de [e] hen lei.*
 Zhangsan ride *de* [e] very tired.
 'Zhangsan rode and got tired.'
- b. *Zhangsan ba ma qi de [e] hen lei.*
 Zhangsan *ba* horse ride *de* very tired.
 'Zhangsan rode the horse and got it tired.'

- (5.54) a. Zhangsan ku de [e] hen shangxin.
 Zhangsan cry *de* [e] very sad.
 ‘Zhangsan cried and got very sad.’
- b. Zhangsan ba Lisi ku de [e] hen shangxin.
 Zhangsan *ba* Lisi ku *de* [e] very sad.
 ‘Zhangsan cried and got Lisi very sad.’

Huang’s intuition here is that the binding patterns of the empty subject of the resultative follow the pattern typical of obligatory control constructions, namely that the empty subject is bound by the nearest potential controller. This pattern is described as follows in Larson’s (1990) adaptation of the Minimal Distance Principle (MDP) of Rosenbaum 1970:

- (5.55) **MDP:** an infinitive complement of a predicate P selects as its controller the minimal c-commanding noun phrase in the functional complex of P.

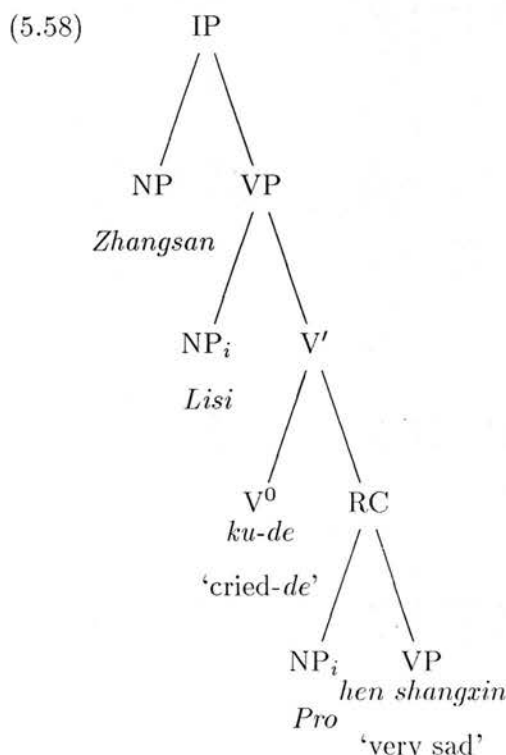
If the above examples are assumed to be instances of control, then the binding patterns follow from the MDP. Similarly the following contrast in acceptability is captured:

- (5.56) a. ta chi de [e] hen bao.
 he eat *de* [e] very full.
 ‘He ate and got full.’
- b. *ta ba fan chi de [e] hen bao.
 he *ba* rice eat *de* [e] very full.
 (Intended: ‘He ate the rice and got full.’)
- (5.57) a. ta he de [e] zui xunxunde.
 he drink *de* very drunk.
 ‘He drank and got very drunk.’
- b. *ta ba jiu he de [e] zui xunxunde.
 he *ba* alcohol drink *de* [e] drunk

Huang thus concludes that these are control constructions, and subject to the MDP. A consequence of this conclusion is that he must also assume that *ba* does not increase the depth of embedding, since that would affect the c-command properties of the *ba* object. *ba* therefore must be an inserted Case marker. One question that arises here is how he reconciles his assumptions about control here with claims he has previously

made about control in Chinese. In earlier articles on empty pronouns and control (Huang 1984; Huang 1987), Huang proposes the Generalised Control Rule (GCR) which crucially makes use not of c-command, but of distance in terms of clause boundaries to determine potential antecedents. In other words under the GCR co-arguments in a clause are not distinguished as potential antecedents of an empty pronoun. The resultative complements would not, therefore, fall under his previous assumptions about control.

The standard argument against a control account is that the matrix verb is often intransitive and cannot theta mark the *ba* phrase. How then is the *ba* phrase theta marked in Huang's account? What he claims is that the subject of the result clause is actually represented as the object of a complex predicate containing the matrix verb and the predicate of the result clause with an empty subject *Pro*. In other words he proposes the following D-structure:



In this structure the result clause is theta marked by the verb, while *V'* compositionally theta marks *Lisi* in the specifier position of *VP*, and the *VP* compositionally theta marks the subject. Since the specifier position of *VP* is an un-Case marked position, this is not yet a grammatical string. Huang claims that the Case filter can be satisfied in one of two ways. Either *ba* is inserted in front of *Lisi*, or the verb *ku-de* moves up to Case

mark as an instance of head movement, yielding the following surface structure:

- (5.59) Zhangsan ku-de [_{VP} Lisi_i [_{V'} *t_v* [_{RC} Pro_i hen shangxin]]

Hence what looks like the subject of the resultative is in fact the object of the complex predicate. It appears to be the subject because it controls the empty subject of the resultative with no intervening lexical material.

As motivation for this complex predicate analysis, Huang observes that many of the complex predicates have V-V compound counterparts. Thus parallel to the complex predicate *ku-de Pro dou shi le* ('cry until Pro became wet'), there is the compound V⁰ *ku shi* ('cry wet'):

- (5.60) a. Zhangsan ku de shoupa Pro dou shi le.
 Zhangsan cry *de* handkerchief Pro all wet *le*.
 'Zhangsan got the handkerchief wet with his crying.'
- b. Zhangsan ba shoupa ku de Pro dou shi-le.
 Zhangsan *ba* handkerchief cry *de* Pro all wet.
 'Zhangsan got the handkerchief wet with his crying.'
- (5.61) a. Zhangsan ku shi le shoupa.
 Zhangsan cry wet *le* handkerchief.
 Lit.: 'Zhangsan cried wet the handkerchief.'
- b. Zhangsan ba shoupa ku shi le.
 Zhangsan *ba* handkerchief cry wet *le*.
 Lit.: 'Zhangsan cried wet the handkerchief.'

Huang also suggests that the retained object constructions manifest parallel properties and fall under the same account, the complex V-O compound compositionally Case marking the preverbal object.

The arguments for analysing the phrasal resultatives as complex predicates are very compelling. There are a number of problems however with the assumptions Huang makes about *ba*.

Firstly it is not transparent how his approach applies to simple matrix *ba* constructions. These constructions cannot be argued to be control constructions. Nor does it seem plausible to suggest that the *ba* phrase is compositionally theta marked. Since these constructions are not addressed in the paper one can only guess at a solution.

Under this approach Huang has to assume that *ba* is inserted as a dummy Case marker, since it must not affect the depth of embedding of the preverbal object. There seem to be a number of reasons which suggest that this is the wrong assumption. Firstly as observed by Li (1985) the *ba* phrase seems to pattern syntactically with other PPs. Secondly, consider the following contrast:

- (5.62) a. Zhangsan *ba* *ma* *qi* *de* *hen* *lei*.
 Zhangsan *ba* horse ride *de* very tired.
 ‘Zhangsan rode the horse and got it very tired.’
- b. Zhangsan *qi* *ma* *qi* *de* *hen* *lei*.
 Zhangsan ride horse ride *de* very tired.
 ‘Zhangsan rode a horse and got very tired.’

These sentences differ in the interpretation of the subject of the resultative. What differentiates the two sentences is the choice between verb reduplication and *ba*. This suggests that the role of *ba* is more than simply that of a formal licenser.

Huang himself notes this contrast, but does not believe it to be a counterexample to his approach. What he proposes is that the reduplication is triggered by a constraint that prohibits the verb in Chinese from taking more than one complement. He suggests that the first instance of the verb is a deverbalised adjunct modifying the matrix verb. This is an adhoc solution that does not seem well motivated. In fact the reduplicated verb seems a more likely candidate for an inserted Case marker than *ba*, since it has no independent semantic content and serves only to license the object *ma* (‘horse’).

Further evidence that *ba* is not an inserted Case assigner comes from the A-not-A construction. The A-not-A construction is a yes-no question formed by reduplicating a verbal head and negating the second instance. The following data show that *ba* is available for reduplication in the A-not-A construction:

- (5.63) *ni ba bu ba shu gei ta?*
 you *ba* not *ba* book give her?
 ‘Are you going to give her the book?’

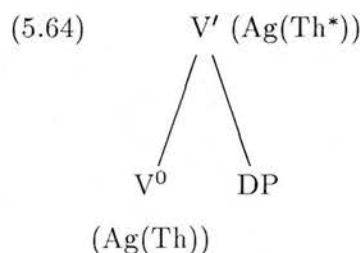
This data is not conclusive since the syntax of the A-not-A construction is not well understood but it is nonetheless suggestive.

One final problem with this approach is the idea of compositional theta marking.

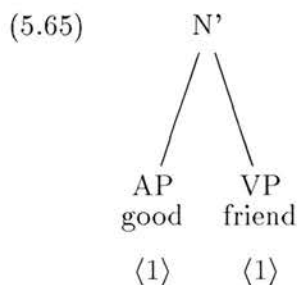
Although in principle a plausible idea, it has no theoretical foundation. Questions such as how it happens and how it relates to the Projection Principle are not addressed.

Base generation and theta identification

In the account of Huang 1991 discussed above, the fact that the *ba* object has the theta role ⟨Affected Theme⟩ or ⟨Patient⟩ is the result of the compositional theta marking by the V^0 and its resultative complement. In an interesting analysis proposed by Cheng 1986 *ba* itself assigns the theta role <Affected Theme>. The fact that the *ba* phrase usually appears to realise the internal theta role of the verb is captured using the mechanism of theta identification developed in Higginbotham 1985. Under this system the theta grid of a verbal head percolates up through the tree to be discharged. Theta discharge is represented by an asterisk and is effected by one of three mechanisms: theta marking, theta binding or theta identification. Theta marking is involved in the discharge of the internal theta role of a transitive verb in its complement position:

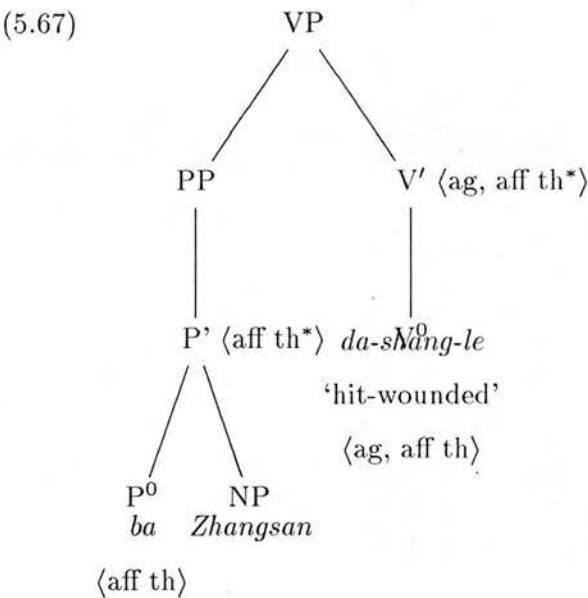


Theta binding arises in the case of nouns which Higginbotham proposes have a theta position which gets bound by a nominal in their specifier position. The third mechanism, theta identification, is what Cheng suggests happens in the *ba* construction. In Higginbotham's system theta identification is involved in modification structures. For example in attributive adjectival modification of a noun, the adjective has a single theta role which is discharged by identification with the single theta role of the noun.



Given this method of theta discharge, the simple *ba* construction no longer constitutes evidence that *ba* does not have its own theta role. Cheng argues that the restriction of *ba* to only affected objects arises precisely because *ba* has a single theta role to assign, namely <affected theme>. *ba* thus requires that the verb assign the internal role <affected theme>, which is discharged by identification with the theta role of *ba*. The VP in (5.66) therefore has the analysis in (5.67):

- (5.66) *ba* Zhangsan *da-shang* *le*.
ba Zhangsan hit-wounded *le*



In this way Cheng claims to capture the fact that it is the combined properties of the verb and *ba* that restrict the occurrence of *ba*. Cheng suggests that <affected theme> is assigned only by V-V compounds in which the right hand member indicates result, direction or completion. In the following example therefore, the verb *da-sao*, meaning ‘hit-sweep’ does not assign the theta role <affected theme>. This should predict that the following sentence is not licensed. Nonetheless the sentence is well-formed:

- (5.68) *ta ba fangjian da-sao* *le liangci*.
 he *ba* room hit-sweep *le* twice.
 ‘He cleaned the room twice.’

Cheng proposes that it is the modifying phrase *liangci* (‘twice’) that licenses the *ba* fronting of the object. She analyses the contribution of the modifier in terms of a connection between completion and affectedness, as follows. The fact that the room

has been cleaned twice means that the cleaning has been completed. Completion of the cleaning means that the room was dirty and now is clean. Therefore the room is affected.

Cheng then captures this connection between completion and affectedness with a feature specification system using the features $[\pm\text{completion}]$ and $[\pm\text{affected}]$. This system assumes the theory of underspecification in Kiparsky 1982:

(5.69) $[\pm\text{completion}]$:

In the lexicon, verbs are either marked as $[-\text{completion}]$ or they are unmarked for this feature. The following redundancy rules fill in the values:

- a. $[+\text{affected}] \rightarrow [+\text{completion}]$
- b. $[+\text{perfective}] \rightarrow [+\text{completion}]$
- c. (presence of a result clause in VP) $\rightarrow [+\text{completion}]$
- d. $[] \rightarrow [-\text{completion}]$

(5.70) $[\pm\text{affected}]$:

Within the theta grid of a verb or preposition, themes are either marked $[\pm\text{affected}]$ or unmarked for the feature. The following redundancy rules fill in the values:

- a. $[\pm\text{completion}] \rightarrow [+\text{affected}]$
- b. $[] \rightarrow [-\text{affected}]$

Cheng's analysis represents an improvement on earlier accounts in that the link between $[\text{affectedness}]$ and $[\text{completion}]$ is made formally explicit. Cheng's informal explanation for this link, however, is at best tenuous. Furthermore the account that she gives is purely descriptive in that the features are merely stipulated to covary in the way that they do. In other words her system describes the interaction between the verb phrase and the *ba* object but there is nothing inherent in her analysis of either affectedness or completion that explains why they should interact in this way. In the analysis developed below, it is argued that the affected interpretation of the object is derived from its role in the event structure of the proposition, thus explaining why it should be linked to aspect.

5.2.3 Summary of the properties of *ba*

The next section gives a new analysis of the *ba* construction that explains the constraints on *ba* fronting. First, in this section, the properties of the *ba* construction already observed are briefly summarised.

Properties of the noun phrase

The definiteness constraint on *ba* has the effect that a bare NP in the *ba* object position receives definite interpretation. Where there is an overt determiner, it can be either definite or indefinite. However if it is indefinite, it must be interpreted as a specific indefinite, or as the number one.

- (5.71) a. wo chi le ji.
 I eat *le* chicken.
 'I ate some chicken.'
- b. wo ba ji chi le.
 I *ba* chicken eat *le*.
 'I ate the chicken.'
- (5.72) a. wo diao le yiben shu.
 I lose *le* one book.
 'I lost a book.'
- b. wo ba yiben shu diu le.
 I *ba* one book lose *le*.
 'I lost one book.' (meaning a specific book)

The other principal feature of the *ba* object is that it is generally restricted to affected objects. Hence the descriptive term the "disposal construction":

- (5.73) a. ta qu le beijing.
 she go *le* Beijing.
 'She went to Beijing.'
- b. *ta ba beijing qu le.
 she *ba* Beijing go *le*.
- (5.74) ta qu le hui.
 she go *le* dirt.
 'She removed some dirt.'

- (5.75) ta ba hui qu le.
 she *ba* dirt go *le*.
 ‘She removed the dirt.’

Properties of the verb

The VP in a *ba* construction requires an “endpoint”; either a perfectivising particle, a perfectivising expression or a phrase or clause specifying a conceptual boundary. *ba* fronting is therefore not licensed where the verb is stative or progressive.

- (5.76) wo xiang le ta.
 I miss *le* her.
 ‘I missed her.’
- (5.77) *wo ba ta xiang le.
 I *ba* her miss *le*.
- (5.78) ta zai xie xin.
 she *zai* write letter.
 ‘She’s writing a letter.’
- (5.79) *ta ba xin zai xie.
 she *ba* letter *zai* write.

5.3 A new approach to *ba*

Previous accounts (with the exception of Cheng 1986) have thus concentrated on the structural properties of *ba* and its object and the contexts in which *ba* is obligatory. The constraints on *ba* fronting have been assumed to be peripheral; a matter of semantics or even pragmatics. These accounts have therefore not attempted to explain the ungrammaticality of examples such as:

- (5.80) *wo ba yige qianbao shi le.
 I *ba* a purse find *le*
- (5.81) *wo ba ta ai.
 I *ba* her love

(5.82) *wo ba ji kanjian le.

I ba chicken saw le

(5.83) *wo ba qian you.

I ba money have.

The unacceptability of (5.80) relates to the definiteness of the object; the object of *ba* is assumed to be necessarily definite. The problem in (5.81) is assumed to be one of aspect; *ba* fronting is not licensed when the verb constellation is stative. Both (5.82) and (5.83) are generally explained in terms of an affectedness restriction on the object of *ba*, although (5.83) also does not meet the aspectual constraints on *ba*, since the verb *you* ('have') is clearly stative. GB accounts have generally acknowledged these descriptive generalisations about the *ba* construction but have taken them to be outwith the scope of a syntactic account of *ba*.

In the case of the definiteness restriction, it is certainly the case that this restriction is not specifically a property of the *ba* construction. Firstly, it is a more general property of word order in Chinese that preverbal NPs have a definite or specific interpretation whereas postverbal NPs have an indefinite interpretation. Thus in the case of ergative verbs where the subject is licensed either preverbally or postverbally, the difference in interpretation between the two subject positions is one of definiteness:

(5.84) a. tankeche lai le.
tanks come le
'The tanks have come.'

b. lai tankeche le.
come tanks le
'There are some tanks coming'

It might also be argued that this definiteness restriction is the effect of the communicative function of *ba*, which is to mark the object as "given" information (Li 1971).

The aspectual restrictions and the affectedness restriction, on the other hand, I argue should form an integral part of the analysis of *ba* licensing. Furthermore I argue that these two types of restrictions intrinsically interact. Cheng 1986, as we have seen, also acknowledges a connection between the notion of affectedness and the aspectual structure of the verb phrase (see previous section). In her account, however, there is

nothing in the inherent in either restriction from which this connection is derived. The only attempts to capture the affectedness restriction (Huang 1991, Cheng 1986) assume that there is a theta role ⟨affected theme⟩. In the following section I suggest that the affectedness condition is not the consequence of a thematic role ⟨Affected Theme⟩, nor is it a subclass of the thematic role ⟨Theme⟩. Instead, based on an idea from Grimshaw 1990, I propose that it derives from an independent hierarchy of semantic roles distinct from thematic roles. Furthermore this second hierarchy interacts directly with the aspectual structure of the verb constellation. The interaction of the two restrictions on *ba* therefore derives from this interaction between the semantic hierarchy and aspectual structure.

5.3.1 Affectedness and *ba*

What then is this second semantic hierarchy which yields the affected interpretation of the *ba* object, and is there any evidence that it is an autonomous level of semantic description distinct from the thematic dimension? The data in (5.85) suggests that causation is involved. In this example, the roles of cause and affected appear to be assigned independently of the thematic structure of the verbs involved:

- (5.85) a. *wo da-po le tade chuankou.*
 I hit-broken *le* her window.
 ‘I broke her window.’
- b. *wo da le tade chuankou.*
 I hit *le* her window
 ‘I hit her window.’
- c. *tade chuankou po le.*
 her window broken *le*
 ‘Her window is broken.’

The verb *da* means ‘hit’ and has as its core theta roles ⟨Ag⟩ and ⟨Th⟩, neither of which has a causal interpretation. The verb *po* is an intransitive verb roughly translating as ‘broken’, with the single theta role ⟨Th⟩. Given the assumption that the thematic structure of the compound *da-po* (‘break’) derives from the thematic structure of its two component verbs *da* (‘hit’) and *po* (‘broken’), the examples in (b) and (c) suggest that the causal properties of the arguments cannot be directly thematic. On the assumption

that affectedness is a property on the same level as causation, this suggests that the affectedness constraint on the *ba* construction should not be analysed as a property of the thematic grid as Huang and Cheng have both assumed.

In the following section I briefly outline the proposal in Grimshaw 1990. I then show how some of the Grimshaw's insights can be adapted to shed light on the *ba* construction.

Grimshaw's aspectual roles

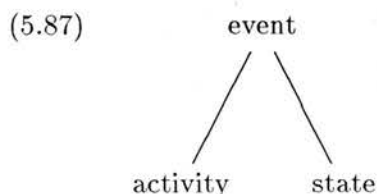
Grimshaw 1990, in an account of psychological predicates suggests that there is a dimension of semantic analysis independent from thematic structure which is essentially causal in nature. The two classes of psychological predicates are represented by *frighten* and *fear* which have the same thematic analysis but are distinguished along this dimension: *frighten* is causative whereas *fear* is stative. The importance of this for Grimshaw is that it provides insight into the argument realisation of the two verb classes. In particular, it sheds light on the question of why, in the *frighten* class of predicates, the ⟨Theme⟩ is realised as the subject despite being lower on the thematic hierarchy. This fact now falls under the broader generalisation that cause arguments of causative predicates are always subjects. The causal status of arguments is thus indicative of an independent dimension of prominence relations that is distinct and autonomous from the thematic dimension:

(5.86) (Cause(other(...)))

It is the alignment (or misalignment) of arguments across the thematic dimension and this causal dimension that yields differing behaviour in relation to argument realisation.

The contentful notion of cause, however, is too narrow. Neither agentive predicates, nor unergative predicates nor psychological predicates show any of the effects of the misalignment of the two semantic dimensions, so their subjects must have some property in common which qualifies them for maximal prominence on the causal dimension. They are not however causatives. How then is this second dimension defined. Grimshaw suggests that the answer lies in the event structure of the predicates and that the dimension is aspectual in nature. Adopting a Vendler–Dowty approach to event structure which breaks events down into aspectual subparts, Grimshaw suggests that aspectual prominence derives from participation in the subevents of a complex event. For example, an

accomplishment such as *break* is a complex event which breaks down into an activity and a consequent state.



Under such an analysis, the cause argument is always associated with the first subevent. Grimshaw generalises this to the claim that the argument that participates only in the first subevent of a complex event is aspectually more prominent than an argument that is associated with both or only the second subevent. I shall continue to refer to the aspectual role (a-role) assigned to that argument as $\langle \text{Cse} \rangle$ although it should be understood that the causal interpretation stems not from the a-role itself but from the relation between the two subevents of the complex event, ie. it is in some sense epiphenomenal.

The aspectual dimension and *ba*

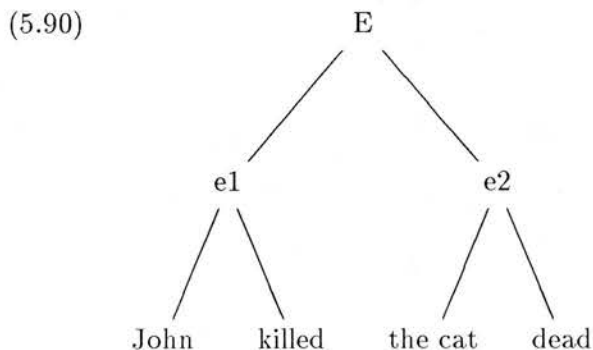
In this section, I propose that the affectedness constraint on *ba* relates to this aspectual hierarchy. The first step in the hypothesis is to assume that affectedness is also represented in this aspectual dimension. In other words, as well as the “a-role” $\langle \text{Cse} \rangle$, there is the a-role $\langle \text{Aff} \rangle$ in the hierarchy that is now specified as:

(5.88) $\langle \text{Cause}(\text{Aff}) \rangle$

If this is the case then it should be possible to derive the a-role $\langle \text{Aff} \rangle$ from the event structure of the predicate. Consider the predicate *kill* in the following sentence:

(5.89) John killed the cat.

Here *John* is the $\langle \text{Cse} \rangle$ and *the cat* is the affected object. If we turn now to the event structure of the predicate, we find that it is an accomplishment comprising an activity (killing) and the resulting state (being dead):



In particular we find that while the first subevent is predicated of the a-role ⟨Cse⟩, the second subevent is predicated of the a-role ⟨Aff⟩. If we look now at the Chinese translation of (5.89) the same appears to be true.

(5.91) Zhangsan sha le xiaomao.

Zhangsan kill *le* cat.

‘Zhangsan killed the cat.’

Sha has the same lexical event structure as its English translation, with the activity predicated of the subject and the consequent state predicated of the object. Again we find that the notions of cause and affected correlate with these roles in the event structure. Thus it seems that we can abstract away from the contentful notions of Cause and Affected and work in terms of aspectual subevents and their external arguments. Under this approach we can now reformulate the affectedness constraint on *ba* in terms of event structure and Grimshaw’s aspectual roles. More precisely the *ba* object can be viewed as the subject of the dependent subevent in a complex event. Thus the object of (5.91) can appear as a *ba* object, where as this is not possible with a verb such as *ai* that is not a complex event:

(5.92) a. Zhangsan ba xiaomao sha le.

Zhangsan *ba* cat kill *le*

‘Zhangsan killed the cat.’

b. *Zhangsan ba xiaomao ai.

Zhangsan *ba* cat love

This seems to be a step in the right direction because it does look as though event structure rather than a contentful role is what’s relevant. So in the following example, the *ba* object could not be said to be affected in any way.

- (5.93) ta ba yaoshi diu-le.
 he ba key lost
 ‘He lost the key.’

The claim that *ba* in some sense picks out the subject of the consequent state in a complex event entails that a verb like ‘diu’ (lose) must be argued to be a complex event, having as second subevent something like ‘lost’ that is predicated of the *ba* object. In fact, a comparison between the verbs that do allow *ba* fronting with the ones that don’t does indicate that the feature that distinguishes the verbs that allow *ba* fronting is that their event structure involves a consequent state as the second subevent, when the verb is combined with the perfective *le* (*le* is completely ambiguous between termination and completion). Examples are verbs such as *chi* (‘eat’), *xi* (‘wash’), *si* (‘tear up’), *wang* (‘forget’), *pian* (‘cheat’),. The verbs that don’t allow *ba* fronting on the other hand all seem to be either punctual things like ‘arrive’, states, or atelic processes, which either don’t perfectivise (in the case of states) or only involve termination where the perfective *le* is licensed. The following are examples of verbs that do not license *ba* fronting: *dao* (‘arrive’), *tui* (‘push’), *shang* (‘go up’), *dai* (‘carry’), *xihuan* (‘like’).

V-V compounds

The idea that *ba* picks out the subject of the consequent state of a complex event is supported by data from V-V compounds. There are two kinds of V-V compounds, conjunctive ones and causative ones. The conjunctive ones are like *bangzhu*, where both halves of the compound mean (‘help’). They are all either punctual or processes, and don’t break down into subevents. The causative compounds are like overt realisations of the process–consequent state breakdown of the lexical complex events. So for example, *chi-guang* (‘eat-empty’) involves the process of eating and the consequent state in which the bowl is empty, and *chi-bao* (‘eat-full’) involves the process of eating and the result of being full:

- (5.94) wo chi guang le fan.
 I ate empty *le* rice.
 ‘I ate up all the rice.’

- (5.95) *wo chi bao le fan.*
 I ate full *le* rice.
 'I ate rice and ended up full.'

If *ba* picks out the subject of the consequent state, then we would expect *ba* fronting to be licensed with *chi-guang* ('eat-empty'), and not with *chi-bao* ('eat-full'). This expectation turns out to be correct. In the case of *chi-guang* ('eat-empty') the result is predicated of the object *fan* and *ba* fronting is licensed:

- (5.96) *wo ba fan chi-guang le.*
 I *ba* food eat-empty *le*
 'I ate up all the rice.'

In the case of *chi-bao* ('eat-full') the consequent state is predicated of the subject and *ba* fronting is not licensed as expected:

- (5.97) **wo ba fan chi-bao le.*
 I *ba* food eat-full *le*

Thus we can explain why it is that where the interpretation of the V-V compound is ambiguous, as with *qi-lei* ('ride tired'), *ba* fronting is licensed only in the interpretation where *lei* ('tired') is predicated of the object:

- (5.98) *wo qi lei le neipi ma.*
 I ride tired *le* that horse
 either: 'I rode that horse and it got tired.'
 or: 'I rode that horse and got tired (myself).'

but

- (5.99) *wo ba neipi ma qi-lei le.*
 I rode that horse and got it tired.

This analysis also seems to carry over to phrasal resultatives using the particle *de*. Fronting in these examples is obligatory as the resultative complement saturates the postverbal complement position. However, the fronted object can be licensed preverbally either by *ba* or by verb reduplication. Again it is *ba* that forces the reading where the horse is tired. Compare:

- (5.100) wo ba ma qi de lei le.
 I ba horse ride de tired le.
 'I rode the horse and got it tired'

- (5.101) wo qi ma qi de lei le.
 I ride horse ride de tired le.
 'I rode the horse and got tired.'

Adopting Huang's insight that these are, at some level of representation, complex predicates, they are assigned a complex event structure parallel to the lexically formed V-V compounds. These phrasal resultatives are considered in more detail below.

Whether in the V-V compound the consequent state is predicated of the subject or the object of the process or is ambiguous is not a linguistic issue; it is world knowledge not syntax that tells us that rice can't be full. The fact that the consequent state has to be predicated of one of the arguments of the first subevent, is however a matter of syntax. Li 1990 suggests that it is Case restrictions that force argument identification. There are, he claims, only two Cases that the V-V compound can assign therefore only two arguments can be realised. However where one of the subevents has three arguments, he uses *ba* as an extra Case marker and three argument positions are licensed. So the obvious problem here is what prevents

- (5.102) *wo ba ma qi lei le Zhangsan.
 I ba horse ride tired le Zhangsan

This has a plausible interpretation under which I know that Zhangsan worries whenever I horse ride and I ride until Zhangsan is exhausted with worry. Nonetheless, it is ungrammatical. Furthermore in the following example, both verbs in the compound are intransitive, and the compound itself is transitive.

- (5.103) ta ku shi le shoupa.
 he cry wet le handkerchief
 'He got the handkerchief wet with his crying.'

Li doesn't address what determines the Case assigning properties of the compound, so until that is established, Case cannot be used to determine identification.

Assuming that identification has somehow been forced, Grimshaw's system should give us the aspectual structure of the V-V compound:

- (5.104) qi lei
 < Ag, Th-Exp>
 1 1,2

Here we have the <Theme> identifying with the <Experiencer>. The indexes attached to the thematic grid refer to the subevents that the two arguments participate in. Following Grimshaw's system, this means that the <Agent> is higher in the aspectual structure than the Theme, because it participates only in the first subevent. In other words, in terms of the aspectual hierarchy (Cse(Aff)), the <Agent> satisfies the <Cse> role. The <Th-Exp> then satisfies the <Aff> role. Since the *ba* object is specified to be <Aff>, we thus capture the fact that *ba* fronting of the object is licensed under this interpretation.

So what about the other interpretation where it is the <Agent> that identifies with the <Experiencer>:

- (5.105) qi lei
 < Ag-Exp, Th>
 1,2 1

Reading the aspectual prominence relations directly from the indexes assigned to the thematic roles, we find that the change in interpretation also yields the reverse aspectual prominence relations. It is the <Theme> that participates only in the first event, whereas the <Agent> is identified with the <Experiencer> and so participates in both events. The <Aff> aspectual role therefore cannot be assigned to the <Theme>, which is now highest on the aspectual rating. The fact that *ba* fronting of the object is not available for this interpretation is thus captured

However, Grimshaw's system for assigning aspectual prominence, combined with the current specification of *ba* predicts that the <Agent-Exp> in (5.105) should be licensed as a *ba* object. This is because it is indexed as the subject of the second subevent, and therefore should satisfy the a-role <Aff>. This prediction does not seem to hold:

- (5.106) *ma ba wo qi lei le.
 horse *ba* I ride tired *le*

However the prediction does hold in some dialects at least if we change the lexical items involved:

- (5.107) a. wo he zui le jiu.
 I drink drunk *le* alcohol.
 'I drank alcohol and got drunk.'
- b. he zui
 ⟨ Ag-Exp, Th ⟩
 1,2 1
- c. %jiu ba wo he zui le.
 alcohol *ba* I drink drunk *le*
 'The alcohol got me drunk (drinking it). '

What is going on here? The difference between the two examples lies in the thematic structure of the first verb in the compounds. In the case of *he*, as well as its ordinary transitive use it can be used as a middle:

- (5.108) zheping jiu he-zhe ting xiang.
 this alcohol drinks very fragrant.
 'This alcohol tastes very fragrant.'

With *qi* on the other hand, only the transitive use is available. An alternative representation of *he zui* is therefore:

- (5.109) he zui
 ⟨ Th, Exp ⟩
 1 2

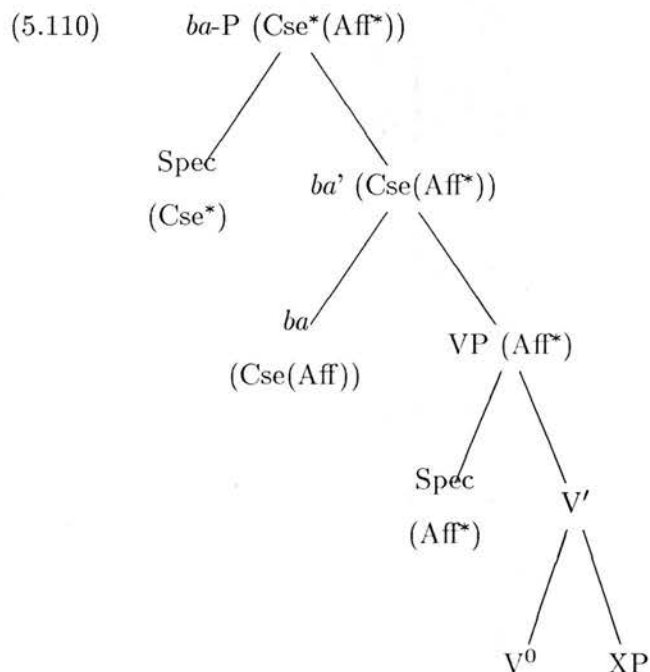
There are a number of possible directions via which to explain the difference in acceptability of (5.106) and in (c). Since the proposed ⟨Cse⟩, in both cases is a ⟨Theme⟩, it seems that the most likely source of the difference lies in the status of the proposed *ba* object. It might seem that the relevant factor is the fact that the *ba* object is uniquely associated with the second subevent in (c). However, the wellformedness of *ba* fronting of the ⟨Th-Exp⟩ in (5.104) shows that this is not the appropriate solution. The acceptable *ba* objects are the ⟨Th-Exp⟩ in (5.104), and the ⟨Exp⟩ in (5.109). The unacceptable *ba* object is a ⟨Ag-Exp⟩. Grimshaw observes that the ⟨Agent⟩ is always the ⟨Cse⟩. The unacceptability would appear therefore to stem from the agentivity of the argument, which causes a conflict in aspectual roles. This suggests that aspectual prominence cannot be ascertained by simple indexing with the number of the subevent,

but must take into account the role of the argument in the subevent. I return to this problem below to show how it is explained by the account of aspectual role assignment given here.

5.3.2 Aspectual role assignment and functional heads

So far it is claimed that the *ba* object occupies a particular position in the event structure of the clause. This is represented using Grimshaw's notion of an aspectual hierarchy. In particular, the *ba* object must realise the second most prominent in the aspectual hierarchy, ie. $\langle \text{Aff} \rangle$. Furthermore this information must be part of the syntactic representation of the *ba* construction. Syntax cannot count, however, so how can *ba* be specified to pick up the second role in an aspectual structure?

Recall that *ba* is assumed to be a thematic mediator, parallel to the analysis of the coverbs given in the previous chapter. It is thus a functional head, heading a Larson-style VP shell, licensing the thematic roles from its VP complement via its own argument structure. This explains its fixed position with other preverbal coverbs. Given this structure, I propose that *ba* actually assigns both $\langle \text{Cse} \rangle$ and $\langle \text{Aff} \rangle$; $\langle \text{Aff} \rangle$ to the NP in the specifier position of its VP complement, and $\langle \text{Cse} \rangle$ to its own specifier. In other words, by analogy with theta roles it has the a-role grid (Cse(Aff)):



In fact, the null hypothesis of this approach is that the a-roles are not assigned at all by the lexical heads but only by functional heads such as *ba*. Thus the ambiguity in the following example arises because no a-roles are assigned:

(5.111) *wo qi lei le neipi ma.*

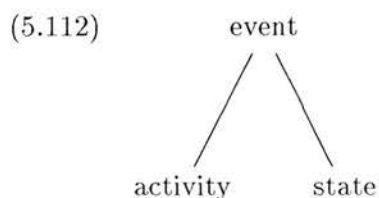
I ride tired *le* that horse

Either: 'I rode that horse and got tired.'

or: 'I rode that horse and it got tired.'

Since no a-roles are assigned here, neither DP is explicitly marked as the subject of the second subevent of the compound. When *ba* is projected it assigns an a-role which explicitly marks its object as the subject of the second subevent. A-role assignment is not sufficient to satisfy the Theta Criterion, so the NP object of *ba* has to receive its theta role from somewhere else. The effect of this is that *ba* does have independent semantic content but its object is an argument of the lexical head. Effectively what *ba* does, then, is to assign aspectual prominence relations, which then interact with the event structure of its complement. In other words, by virtue of the a-roles that it assigns, *ba* requires that the event structure of its complement VP be a complex event.

This is somewhat different from Grimshaw's approach, in that a-roles are syntactically and not lexically assigned. In Grimshaw's approach aspectual prominence relations are a lexical feature on an argument derived from the lexical representation of the event structure of a lexical head. In the Chinese data that we are considering here, the event structure of the predicate is not lexical, but rather is built up compositionally as part of the syntactic compounding. A-roles therefore cannot be lexically assigned. In fact, even in Grimshaw's system it transpires that the representation of the aspectual structure cannot simply be projected from the lexical semantic representation of the individual predicate, but involves the projection of an abstract event structure template that breaks down into two subevents; and activity and a state or change of state:



Aspectual prominence is determined on the basis of participation in this abstract event template. The difference between the two approaches thus reduces to the level at which the template applies.

A consequence of the assignment of a-roles by *ba* is that the number of a-roles is restricted to only two. A more detailed consideration of the nature of a-roles suggests that this is a desirable result. Grimshaw, in her discussion of the aspectual hierarchy, focuses attention entirely on the argument that is most prominent in the aspectual structure of the head. Of the other arguments in an event structure, Grimshaw's indexing system has nothing to say. For example, in the case of a ditransitive verb, the aspectual structure is marked as (1 (x (x))), where the number indicates that the highest argument on the hierarchy (the ⟨Agent⟩/subject) is associated with the first aspectual subevent, and the x's leave the ⟨Goal⟩ and ⟨Theme⟩ unmarked as to which subevents they are associated with. Grimshaw suggests a number of possible solutions to contexts in which co-arguments have the same index under her system. Either they are they are equally prominent and only thematic prominence distinguishes them, or a more fine-grained aspectual analysis might assign them aspectual prominence. The third possibility is that some arguments have no status at all in the aspectual representation and hence do not interfere with the computation of prominence. Assignment of a-roles by *ba* entails adoption of the latter solution. What then distinguishes arguments that have aspectual status from arguments that do not? Grimshaw computes aspectual prominence in terms of "association" with a subevent. What I propose is that only the argument that the subevent is predicated of, ie. the subject of the subevent, has aspectual status. Given this it is not surprising, in the light of the event template discussed above, that there are only the two a-roles assigned independently by *ba*.

This analysis now offers an explanation for the ungrammaticality of (5.106), repeated here:

- (5.113) *ma ba wo qi lei le.
 horse ba I ride tired le

- (5.114) qi lei
 ⟨ Ag-Exp, Th⟩
 1,2 1

The problem is that *wo* is the subject of both subevents. Where the aspectual roles are explicitly assigned by *ba*, assignment of ⟨Cse⟩ is to the specifier of *ba* and assignment of ⟨Aff⟩ to the specifier of VP, but this would require that *wo* be in both positions. *ma* cannot be assigned the aspectual role ⟨Cse⟩ because it is not the subject of the first subevent. This supports the claim that *ba* assigns not just ⟨Aff⟩ but also ⟨Cse⟩.

Under this analysis we now have an explanation for the following difference in interpretation between a sentence with the object in canonical postverbal position and the corresponding *ba* construction.

- (5.115) *wo qi lei le neipi ma.*
 I ride tired *le* that horse
 ‘I rode that horse and it got tired.’

- (5.116) *wo ba neipi ma qi lei le.*
 I *ba* that horse ride tired *le*
 ‘I rode that horse and *got it* tired.’

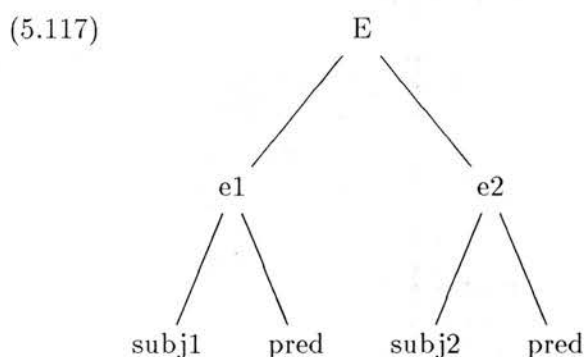
The difference between the two sentences relates to causativity in that there is a stronger causal interpretation in the sentence involving *ba* fronting. Observe that the consequent state in (5.115) is translated as ‘it got tired’, whereas in (5.116) it is translated as ‘got it tired’. Recall that the notion of Cause is in some sense an epiphenomenon of the argument’s status in the event structure of the predicate, and the relation between the subevents of the complex event. Thus where the relationship between the two subevents is causal, the most prominent a-role will have the interpretation of causer, and the second a-role, the interpretation of affected. Explicit assignment of the a-roles in a causal complex event will therefore yield a stronger causal interpretation.

5.3.3 The syntax-event structure interface

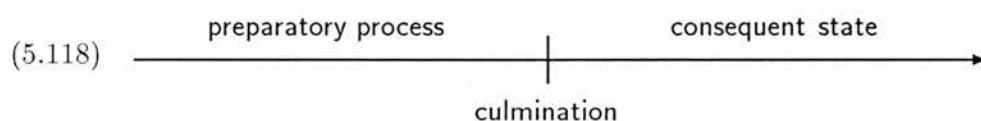
Crucial to this approach is the availability of event structure information at the syntactic level of representation. Without access to event structure, the a-roles assigned by *ba* are meaningless. Nonetheless the level of event structure is clearly an independent level of representation. The previous section discusses the event structure template adopted by Grimshaw, and argues that this is the kind of event structure representation that must be accessible to the syntax. In this section, the event structure template is discussed in

more detail and the basic requirements for a mapping between syntactic structure and event structure are outlined.

In the representation of the basic event structure template to which the syntax must have access, a complex event **E** comprises two subevents, each of which has a subject-predicate structure. The first subevent is a process, for which the second subevent is the consequent state. There is thus an implicit semantic relation of contingency (Moens and Steedman 1988) between the two subevents. This basic structure is represented in the following event structure tree:



Following Grimshaw, the argument that realises *subj1* in this structure is the external argument of the verb. Unaccusatives, on the other hand, correspond to *e2*; their single argument corresponding to *subj2*. Hence they have no external argument but their single argument is still the most prominent aspectually, so it is still realised as a subject. The kind of event structure representation given in (5.117) can be viewed as derived from the following more detailed event diagram in which contingency relations and the eventuality of each subevent are more explicitly represented:



The representation in (5.117) abstracts away from the semantic and aspectual information in (5.118) reducing the event structure to the information required to ascertain the aspectual prominence relations assigned by the a-roles.

For the account of *ba* to be viable, what is now required is a mapping between the syntactic structure and this reduced event structure, since the information represented by the a-roles relates not to syntactic structure but to event structure. The algebraic

details of this homomorphism are beyond the scope of this investigation. In what follows, however, the specifications for such a mapping are informally outlined.

The first point to note is that there is a lexical mapping between individual lexical heads and the structure in (5.117). The different types of eventuality correspond to different parts of the complex event template². When the lexical head is inserted into the syntax, the mapping between the lexical head and the event template is maintained, and interacts with the aspectual properties of other elements in the sentence to yield the event structure of the proposition as a whole³. Effectively, the event structure of the whole sentence is compositionally built up out of the individual lexical event structure representations. The representation of the event structure of the whole clause is then given by the mapping from the fully projected syntactic tree to the event template. The mapping between event structure representations and the syntax has to make available to the syntax the fact that the consequent state (e2) is instantiated in the following constructions:

- Telic verb plus *le*:

(5.119) ta ba ji sha le.
 she *ba* chicken kill *le*
 ‘She killed the chicken.’

- Resultative V-V compound:

(5.120) ta ba ji sha si le.
 she *ba* chicken kill die *le*
 ‘She killed the chicken.’

- Non-stative matrix verb plus resultative complement:

(5.121) ta ba ji sha de si le.
 she *ba* chicken kill *de* die *le*
 ‘She killed the chicken.’

²The situation is somewhat more complex than this. For example, a telic verb corresponds to the whole complex event *E*, in that it lexically entails a consequent state, but the consequent state is not instantiated until the verb is combined with *le*.

³The most obvious approach is to reinterpret the event structure tree as a set of features that can percolate around the tree and unify with other event structure feature matrices.

The mapping must also establish which parts of the syntactic structure correspond to which parts of the event structure. The second verb of the V-V compound, and the resultative complement must map to (e2), and the first verb, or matrix verb, to (e1). In other words, *si* ('die') must be marked as the consequent state in both (5.120) and (5.121). Note that the event structure representation for the above examples will be identical. This means that the mapping must ensure that the consequent state in the lexical representation of *sha* ('kill') gets identified with overt consequent state *si* ('die').

5.3.4 Movement or percolation?

We have shown so far that *ba* does not independently assign its own theta role. This suggests that movement is involved. Goodall 1987 observes that where the *ba* object is theta marked in an embedded clause, only the subject and not the object can be *ba* fronted, and concludes from this that *ba* fronting is an instance of A-movement. However, it might also be argued to be an instance of argument percolation as proposed in Adger and Rhys forthcoming, and discussed in chapter 4. Is there any evidence that indicates which of the possible mechanisms is involved here? An obvious approach to this question would be to see whether movement to the *ba* position violates any of the constraints on movement. Unfortunately it is not clear from the literature on non-canonical word order constructions in Chinese that the usual constraints on movement hold more generally in Chinese. Huang 1984 argues that subadjacency is not violated in Chinese. However for this claim to hold he is forced to introduce a different mechanism (the Generalised Control Rule) to account for those instances in which Subadjacency appears to be violated. Xu and Langendoen 1985 on the other hand argue that Subadjacency is not relevant to Chinese, but do not provide any explanation for the apparent restrictions on non canonical word orders.

An alternative approach to establishing whether movement is involved in the *ba* construction is to investigate whether the availability of *ba* fronting patterns with the availability of other constructions assumed to involve movement. Consider the range of double object constructions discussed in Li (1985). Li gives five subtypes of double object constructions based on use of the coverb/preposition *gei* ('give'), dative shift, topicalisation (A-bar movement), and passivisation (A movement). Ignoring the data involving the coverb *gei* ('give'), this reduces to three principle subtypes. Type 1 permits

topicalisation of either argument. Passivisation, on the other hand is licensed only of the direct object (Theme) and only where the indirect object is indefinite:

(5.122) *wo song ni yiben shu*

I give you one book
'I'm giving you a book.'

(5.123) *Zheiben shu wo song ni.*

This book I give you.
'This book, I'll give you'

(5.124) *Neige ren wo song yiben shu.*

That person I give one book.
'That person, I'll give a book.'

(5.125) *Neiben shu bei wo song le ren.*

That book PASS I give *le* person
'That book was given away by me.'

(5.126) **Ni bei wo song yiben shu.*

You PASS I give one book

For verbs of Type 2, either argument can topicalise, but neither passivises:

(5.127) *wo gei ni tade dizhe.*

I give you her address
'I'll give you her address.'

(5.128) *tade dizhe wo gei ni.*

her address I give you
'Her address I'll give you.'

(5.129) *Neige ren wo gei tade dizhi.*

that person I give her address.
'That person I'll give her address.'

(5.130) **Tade dizhi bei wo gei ni.*

her address PASS I give her

(5.131) **ni bei wo gei tade dizhi.*

you PASS I give her address

For Type 3 verbs, neither topicalisation nor passivisation of either argument is licensed:

(5.132) wo chi le ta hen duo dun fan.

I eat *le* her very many meals food
'I got lots of meals from her.'

(5.133) *hen duo dun fan wo chi le ta.

very many meals food I eat *le* her.

(5.134) *neige ren wo chi le hen duo dun fan.

that person I eat *le* very many meals food.

(5.135) *hen duo dun fan bei wo chi le ta.

very many meals food PASS I eat *le* her

(5.136) *ta bei wo chi le hen duo dun fan.

she PASS I eat *le* very many meals food

If we now compare the possibility of *ba* fronting with this movement data the following facts emerge. Within the Type 1 group there is some variation as to whether or not *ba* fronting is licensed but where it is licensed it is only licensed of the direct object (Theme). This patterns with A-bar movement which is also licensed only of the (Theme). Type 2 verbs also only allow *ba* fronting of the direct object (Theme). In this instance, however, *ba* fronting does not pattern with either kind of movement. If *ba* fronting were a movement operation, we would expect *ba* fronting to either be licensed with both arguments, parallel to topicalisation, or to be licensed with neither argument, parallel to passivisation. For Type 3 verbs *ba* fronting is not allowed with either object so it patterns with both kinds of movement.

(5.137) a. wo ba neiben shu song ni.

I *ba* that book give you.
'I'm giving you that book'

b. *wo ba ni song neiben shu.

I *ba* you give that book.

- (5.138) a. wo ba tade dizhi gei ni.
 I *ba* her address give you
 ‘I’m giving you her address.’
 b. *wo ba ni gei tade dizhi.
 I *ba* you give her address
- (5.139) a. *wo ba hen duo dun fan chi le ta.
 I *ba* very many meals food eat *le* her.
 b. *wo ba ta chi le hen duo dun fan.
 I *ba* her eat *le* very many meals food.

This data suggests that *ba* fronting is not a movement operation, since it does not clearly pattern with either type of movement. The data also brings to light how little understood the properties of movement are in Chinese. Since relativisation also does not consistently pattern with topicalisation it is clear that the whole question of the mechanisms involved in non-canonical word orders in Chinese is still open to investigation.

Given these problems, I leave open to future research the question of the mechanism by which the object appears preverbally in the *ba* construction. In the following sections, I show how the approach to *ba* outlined above accounts for *ba* fronting in resultative constructions, and for the licensing of outer objects in the retained object construction.

5.3.5 Resultative complements

Resultative complements appear in complement position, that is postverbally. The particle *de* cliticises on to the verb and has as complement a clause or a predicate.

- (5.140) ta qi de ma hen lei.
 she ride *de* horse very tired
 ‘She rode so much the horse got tired.’
- (5.141) ta qi de hen lei.
 she ride *de* very tired
 ‘She rode so much she got tired.’

The reason that the resultative construction is important to the study of *ba* is that, as we saw above, *ba* fronting of the subject of the resultative complement is licensed

even where the DP in question is clearly an argument only of the embedded clause and not of the matrix clause:

- (5.142) a. wo ku de Zhangsan hen shangxin.
 I cry *de* Zhangsan very sad.
 'I cried so much that Zhangsan was very sad.'
- b. wo ba Zhangsan ku de hen shangxin.
 I *ba* Zhangsan cry *de* very sad.
 'I cried so much that Zhangsan was very sad.'

The matrix verb in these sentences is *ku* ('cry') which on its own does not license an object, either in canonical object position or as a *ba* object:

- (5.143) *wo ku le Zhangsan.
 I cry *le* Zhangsan
- (5.144) *wo ba Zhangsan ku le.
 I *ba* Zhangsan cry *le*

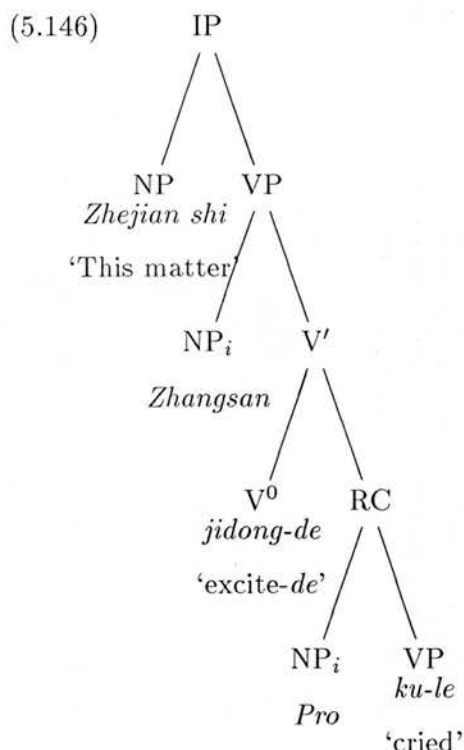
The *ba* object must therefore be theta marked in the embedded clause. Recall that this is a property only of resultative complements; other embedded clauses do not permit *ba* fronting of their subjects.

In general for each resultative V-V compound there is a corresponding resultative complement. Furthermore the behaviour of the resultative complements in relation to *ba* parallels that of the V-V compound. Thus the interpretation of the subject of the resultative is dependent on the choice of verb reduplication or *ba*:

- (5.145) a. Zhangsan ba ma qi de hen lei.
 Zhangsan *ba* horse ride *de* very tired.
 'Zhangsan rode the horse and got it very tired.'
- b. Zhangsan qi ma qi de hen lei.
 Zhangsan ride horse ride *de* very tired.
 'Zhangsan rode a horse and got very tired.'

As with the V-V compounds where the object is licensed by *ba*, the resultative must be interpreted as being predicated of the *ba* object. Where it is licensed by verb reduplication, the resultative must be interpreted as predicated of the matrix subject.

The structure of the resultative complement is a subject of much debate within the Chinese linguistic circles. In the account of Huang described above, the matrix verb and resultative complement form a complex predicate of which the *ba* object is the object. The subject of the resultative in his account is always empty and controlled by a c-commanding DP:



Examples such as (5.140) only appear to have an overt subject as a result of verb movement to a higher VP shell, which leaves no intervening phonological material between the object of the compound predicate and the empty subject of the resultative. Since the apparent subject in Huang's account is in fact the object of the complex predicate, this explains the availability of *ba* fronting.

Huang's account focuses on the subject of the resultative and its interpretation. In Sybesma 1991, on the other hand, the aim is to explain the relation between the two forms of resultative; the V-V compound and the resultative complement. Sybesma posits a functional projection ExtP (ExtentP), the head of which is empty at D-structure. ExtP appears in postverbal complement position, and has as complement a clause. The head of ExtP is then filled at S-structure either via head movement of the verb from the embedded clause, yielding the V-V compound, or by insertion of *de* to yield the resultative complement. In this way the two forms of resultative are derived from the

same D-structure and *de* is explained as a semantically empty dummy whose function is to assign a phonological matrix to the empty projection.

There are a number of problems with this approach. Firstly, Sybesma does not address the question of how the selectional properties of the matrix verb are satisfied where ExtP is generated in the complement position of a transitive verb. Secondly, it is not the case that in every instance both forms of the resultative are possible:

- (5.147) a. Zhangsan ku de shoujuan hen shi.
 Zhangsan cry *de* handkerchief very wet
 ‘Zhangsan got the handkerchief very wet by crying’
- b. *Zhangsan ku shi shoujuan hen.
 Zhangsan cry wet handkerchief very
- (5.148) a. *Zhangsan ba pengyou ku de zou le.
 Zhangsan *ba* friend cry *de* leave *le*
- b. Zhangsan ba pengyou ku zou le.
 Zhangsan *ba* friend cry leave *le*
 ‘Zhangsan made his friend leave by crying so much.’

In cases such as (5.147), where there is no V-V compound, an explanation is available in this approach in terms of constraints on V movement⁴. In this particular example, verb movement might be argued to be blocked by a constraint on stranded modifiers. The problem lies with those instances where the V-V compound is available but not its phrasal counterpart, as in (5.148). Under this approach, the D-structure for the two forms must be a well-formed D-structure since the V-V compound is licensed. The solution must be formulated at S-structure or later. Since *de* is just an empty dummy it cannot be any property of *de* that makes (a) ungrammatical. Descriptively, the problem seems to be that verbs with no external argument are not licensed in resultative complements. However, this is not readily captured in Sybesma’s analysis.

A further problem with Sybesma’s analysis, and in fact also with Huang’s analysis, is the assumption that *de* has no semantic content. Huang does not even address the properties of *de*, and Sybesma analyses it as a dummy inserted at S-structure. However

⁴This data is actually taken to be evidence for a verb movement account by Sybesma

there is a difference in interpretation between the V-V compound and the resultative construction relating to causality. In the same way that *ba* fronting in a V-V compound yields a stronger causative interpretation than the non-*ba* fronted form, so the resultative compound has a stronger causative interpretation than its V-V compound counterpart:

- (5.149) a. *wo qi lei le neipi ma.*
 I ride tired *le* that horse
 ‘I rode the horse and it got tired.’
- b. *wo qi de neipi ma lei le.*
 I ride *de* that horse tired *le*
 ‘I rode that horse and *got it* tired.’

The particle *de*, thus, clearly does have some semantic content. In particular, it has a similar semantic effect to *ba*.

In the following analysis I will adopt Huang’s basic intuition that the resultative construction forms a complex predicate with the matrix verb⁵. What we are interested in here is the interaction of the resultative complement with *ba*, and with the event structure of the sentence.

Resultative *de* and event structure

The basic claim here is that *de* is a functional head which combines with its complement and with the matrix verb to form a complex event. More precisely, there is, as part of the semantic representation of *de*, a rule that essentially means that *de* combines two independent events, to yield one complex event. Using bracketing to mark subevents this can be represented as shown:

- (5.150) (e1) *de* (e2) \Rightarrow (E(e1)(e2))

This captures Huang’s intuition that these are complex predicates without necessarily forcing it to be a property of the syntax. Under this analysis, it is a complex predicate in that it describes a single complex event. This interaction of *de* with event structure is reflected syntactically in that *de* is also an a-role assigner assigning the two a-roles (Cse

⁵What is not clear to me however is whether this need be a property of the syntax of the construction. A detailed analysis of resultatives is however beyond the scope of this investigation.

(Aff))⁶. It assigns the a-role ⟨Aff⟩ to the DP that it governs in the subject position of the resultative clause, and assigns the most prominent a-role ⟨Cse⟩ to the c-commanding subject of the matrix clause.

If both *ba* and *de* are projected, the a-roles are forced to identify as they refer to the same complex event. The only difference in interpretation is one of causality; there is a stronger causal interpretation when both functional heads are projected. This, as we have seen, can be attributed to the relationship between causality and the a-roles assigned. Apart from this, the following examples have the same interpretation:

- (5.151) Zhangsan ku de Lisi hen shangxin.
 Zhangsan cry *de* Lisi very sad
 'Zhangsan got Lisi sad with his crying.'

- (5.152) Zhangsan ba Lisi ku de hen shangxin.
 Zhangsan *ba* Lisi cry *de* very sad
 'Zhangsan got Lisi sad with his crying.'

These two examples have the same interpretation because the DPs in question are assigned the same a-roles. This suggests an explanation for the following, otherwise confusing, observation. Where the matrix verb has both a transitive and an intransitive reading but there is no matrix object, the matrix verb is nonetheless interpreted transitively and the subject of the resultative is necessarily interpreted as the matrix object:

- (5.153) Zhejian shi jidong de Zhangsan ku le.
 This matter excite *de* Zhangsan cry *le*
 'This matter excited Zhangsan so much that he cried.'
 NOT: 'This matter was so exciting that Zhangsan cried.'

As is seen from the translation, although the matrix verb *jidong* ('excite') appears to be used intransitively, it must be interpreted transitively with the meaning 'excited Zhangsan'. This can be understood as the effect of the a-role assigned to Zhangsan, which is canonically realised as an object. It also explains the marked preference for the corresponding *ba* fronted sentence.

⁶In fact, it may be possible to derive the rule in (5.150) from the a-role structure of *de*.

This analysis in terms of a-roles explains both the object interpretation of the subject of the resultative and the availability of *ba* fronting. It also captures the parallel causality effects of the resultative complements and *ba* fronting in the V-V compounds.

5.3.6 Retained object constructions

The retained object construction refers to examples such as (5.32) or the following:

- (5.154) wo ba Zhangsan mian le zhi.
 I *ba* Zhangsan cancel *le* job
 'I fired Zhangsan.'

- (5.155) ta ba men shang le suan.
 he *ba* door raise *le* lock
 'He locked the door'

These constructions bear a superficial similarity to double object constructions, in that they comprise a verb with two objects. Adopting terminology from Li and Thompson 1981 the postverbal object in the retained object construction is referred to as the inner object, and the *ba* object as the outer object. Both Li 1985 and Huang 1982b; Huang 1991 adopt the analysis (originating in Li and Thompson 1981) in which the outer object is compositionally theta marked by the verb and the inner object together. In Huang 1991 the similarity to double object constructions is reflected in the adoption of a Larsonian style VP shell account.⁷

There are a number of properties, however, that clearly distinguish the retained object from the double object construction. Firstly, only the double object construction licenses both the objects postverbally:

- (5.156) ni gaosu le ta wode jimi.
 you tell *le* her my secret
 'You told her my secret.'

- (5.157) *wo mian le zhi ta.
 I cancel *le* job her

⁷The notion of VP shell was developed by Larson 1988 to account for the double object construction in English

(5.158) *wo mian le ta zhi.

I cancel *le* her job

The outer object in the retained object construction appears postverbally only if it precedes the inner object and is licensed by *de*⁸. This *de* generally serves to license a possessor or any nominal modifier, and where the possessor interpretation is available the sentence is ambiguous between the retained object interpretation and the possessive interpretation. That it is not just a possessive is seen from (5.161) where the possessive interpretation is not available but the outer object is nonetheless licensed in this way:

(5.159) wo mian le ta de zhi.

I cancel *le* he *de* job
'I fired him.'

(5.160) ta bo le juzi de pi.

he peel *le* orange *de* skin
'He peeled the orange.'

(5.161) ta ti le zhimen de yige dong.

he kick *le* paper door *de* one hole
'He kicked a hole in the paper door.'

This option is not available in the double object construction. A DP in this position can only have a possessor interpretation and the indirect object theta role is interpreted as either unrealised, or realised by an empty pronoun:

(5.162) ta gaosu le wo de jimi.

he tell *le* I *de* secret.

Either: 'He gave away my secret.'

or: 'He told him/her/them my secret.'

NOT 'He told me the secret.'

The retained object construction is clearly distinct from the double object construction, but these distinctions are simply not addressed in an account such as Huang's.

Huang's account not only implicitly assumes a parallel with double object constructions, it also explicitly gives a parallel analysis for the resultative construction. For both

⁸This *de* is a different lexical item, written with a different character, from the resultative *de*.

constructions, he proposes compositional theta marking by the verb and its complement and insertion of *ba* in a higher VP shell to Case mark. One question left unaddressed by this approach is why, in the resultative construction, the preverbal object can be Case marked either by *ba*, or by verb reduplication, whereas in the case of the retained object, only Case marking by *ba* is licensed:

(5.163) *wo mian ta mian le zhi.

I cancel him cancel *le* job

What the above discussion suggests is that the outer object of the retained object construction is theta marked neither directly by the verb nor compositionally by the verb and its complement. In Cheng 1986 *ba* is a preposition with its own independent theta role to assign. It picks up arguments from the matrix verb by theta identification. This approach relies crucially on the idea that affectedness is a property of a subset of the theta role ⟨Theme⟩. Above, I have argued against this approach.

A further theory internal argument against theta marking of the outer object by V^0 , V' , or *ba* refers to the operation that relates the two possible surface positions of the outer object. Under any of these approaches the operation by which the outer object appears within the inner object must be a lowering operation; either movement or percolation down the tree. Since current assumptions are that lowering operations are not licensed by UG, this is an undesirable result. How then is it theta marked?

If the outer object is not theta marked by the verb and is not theta marked by *ba*, only one other option remains; it is theta marked by the head noun of the inner object DP. This is the approach to theta marking taken by Goodall and adopted here⁹. The theta role is then licensed either by the particle *de*, or by *ba*. This approach has the advantage that it offers at least the beginnings of an explanation for why the outer object cannot be licensed by verb reduplication. It also does not involve lowering operations or percolation down the tree.

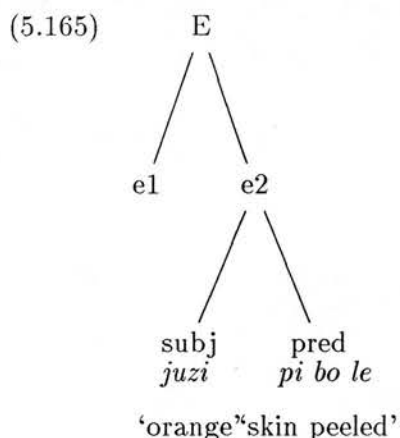
What is important here is that the retained object construction shares crucial properties with other *ba* constructions, and these are predicted by the approach taken here since they are a consequence of the preverbal position of *ba*, and the a-role assigned by

⁹In fact, investigation of extraction and relativisation details suggests that the retained object construction actually encompasses a range of different constructions. This is an area for future research. Here, the important feature of these constructions is their interaction with *ba* which is shown to fall under the a-role analysis.

ba to its object. As in the simple *ba* construction, the outer object is assigned the a-role that makes it the subject of the second subevent in the complex event, ie. ⟨Aff⟩. The difference in the retained object construction is that the predicate in the event structure representation of the consequent state is more complex than that of the simple *ba* construction. In fact, it has the same event structure representation as the related non-gap topic sentence:

- (5.164) *juzi, pi bo le.*
 orange skin peel *le*
 ‘As for the orange, the skin has been peeled.’

Using the event structure template discussed above, this is represented as:



The a-role assignment by *ba* to *juzi* (‘orange’) marks it as the subject of the eventuality predicate, which is the consequent state of the complex event E. This gives the outer object its affected interpretation. It also predicts that the retained object construction is not licensed with the progressive aspect, since there is no consequent state with the progressive aspect. This prediction is born out:

- (5.166) **wo zai ba juzi bo pi.*
 I PROG *ba* orange peel skin

- (5.167) **wo ba juzi zai bo pi.*
 I *ba* orange PROG peel skin

Thus the retained object construction falls under the a-role assigner approach to *ba*.

5.3.7 Discussion

Comparison with the complex predicates analysis

Huang 1991 focuses on argumentation for the notion of a complex predicate, whereas the work here centres on the analysis and representation of *ba*. Nonetheless, because of the interaction between these two language features, the data involved is almost the same. A comparison between the two approaches, therefore seems appropriate.

Huang's article is very convincing but there are a number of problems with it. Firstly, although focusing on the resultative construction, he fails to give any analysis of the resultative particle *de*, it simply appears unanalysed attached to the verb under the V^0 node. Related to this is the absence of explanation for why the verb plus complement should form a complex predicate in this construction. In the account described above, the explanation for the latter lies precisely in the analysis of the resultative particle. It is the fact that the resultative particle is an a-role assigner, combining two events to yield a complex event, that explains the complex predicate interpretation of the whole construction. The failure to analyse *de* also leaves unexplained the stronger causal interpretation of the resultative complement compared to the otherwise equivalent V-V compound (see (5.149)).

In a similar vein, Huang assumes that *ba* is nothing more than a dummy Case marker with no effect on interpretation. Again this leaves the causal interpretation associated with *ba* unexplained. It also means that he fails to capture the aspectual restrictions on *ba* fronting. The affectedness constraint on *ba*, he assumes is a property of the compositionally assigned theta role, and not a property of *ba* at all. This solution does not readily extend to *ba* objects in simple *ba* constructions and V-V compounds. Instead, as discussed above, this property of affectedness is more effectively viewed as an epiphenomenon of the a-role $\langle \text{Aff} \rangle$. In this way, as we have seen, the seemingly unrelated set of constraints on *ba* are shown to derive from one source: a-role assignment.

Lastly, there is the question of the interpretation of the embedded subject of the resultative complement. Huang gives an analysis in terms of control. To do this he has to assume different structures for verb reduplication and *ba*, for which he has no independent motivation. He argues that the reduplicated verb and its object form an adjunct. However, it does not act like an adjunct with respect to word order since

it's position is completely fixed. Nonetheless, analysis of the reduplicated verb and its object as an adjunct does account for the non-extractability of the DP object, but since the DP object of *ba* is also not extractable, this does not provide evidence for a difference in structure between the two. In the account described above on the other hand, verb reduplication and *ba* have the same structure and it is the independently motivated properties of the two heads that yield the different "control" facts.

On the conceptual level it is questionable whether the idea of a complex predicate is ideally applied as a syntactic notion. There clearly is a level at which the notion of complex predicate is both meaningful and useful. It is a semantic concept represented at the event structure level and made available to the syntax through the homomorphic mapping between syntactic structures and event structures.

Outstanding problems

One outstanding problem for this account is the so called complement of extent:

- (5.168) Zhangsan gao de neng mozhao tianpeng.
 Zhangsan tall *de* can touch ceiling
 'Zhangsan is so tall he can touch the ceiling.'

The point about examples such as this is that it uses the same structure as the resultative. In fact many examples are ambiguous between an extent reading and a result reading, as in:

- (5.169) Lisi leng de fadou le.
 Lisi cold *de* shiver *le*
 Extent 'Lisi was so cold he was shivering' or
 Result 'Lisi got cold so that he was shivering'

The difference between the two clearly relates, in part at least, to event structure; under an extent reading the two events are understood to be contemporaneous states, whereas with the result reading the second event is the result state that terminates the first event which must be understood as involving temporal progression. This difference is clearly reflected in the translations of *leng* ('cold').

What this suggests is that a more refined analysis of *de* is needed, if a disjunctive analysis is to be avoided. In particular, a more detailed analysis of the event structures

involved and of the operation by which *de* combines the two events is required. A possible approach is to treat *de* as a operator unifying the event structures of the two predicates. This would allow us to rule out examples such as the following:

(5.170) *wo ba xiaomao xihuan de yao si.

I ba cat like de want die.

(5.171) *ta ba pengyou xiang de lian fan dou bu xiang chi.

he ba friend missed de even food all not want eat.

If *de* combines events by unification, then the overall event type in these examples is stative, hence the unacceptability of *ba*.¹⁰

The following data is also problematic. Given the progressive marker *zhengzai*, the event structure clearly does not involve a consequent state. The account of *ba* would therefore predict it to be ungrammatical:

(5.172) ta zhengzai ba chuan wang shui li tui

she now ba boat towards water in push

'She is right now pushing the boat towards the water.'

The first point to note about this example is that *ba* fronting is not only licensed here, it is obligatory. The obligatoriness stems from the PP *wang shui li* which triggers fronting of the object. One solution would be to just stipulate that the event structure constraints on *ba* do not hold where *ba* is obligatory. The difference between this data and other data in which the object is not licensed postverbally is that in the other cases, other functional heads have been available to license the object DP: verb reduplication for resultative complements, and the possessive marker for retained object constructions.

A direction more in keeping with the current approach follows from the observation that the PP *wang shui li* is a predicate. Furthermore it is a predicate that is relevant to the event structure in that it measures out the event as an activity. The *ba* fronting in this example marks the object of the matrix verb as the subject of this predicate. This suggests again that a more detailed representation of event structure and the mapping between syntactic structure and event structure is required.

¹⁰An additional problem with these examples is that they appear to be licensed in Taiwanese, with the subject of the embedded clause interpreted as coreferential with the matrix subject. While this is further evidence against a purely configurational account of the binding of the embedded subject such as Huang's, it is not clear how it is accounted for in the account given above, under which the examples are simply illformed.

One final problem relates to the retained object construction. Cheung 1973 observes that although (5.173) is well formed, (5.174) is not:

(5.173) ta ba qiang ti le yige dong.
 she *ba* wall kick *le* one hole
 ‘She kicked a hole in the wall.’

(5.174) *ta ba qiang bu le yige dong.
 she *ba* wall mend *le* one hole

The difference in grammaticality here cannot directly aspectual. In both cases the event structure involves a consequent state, although *ti* (‘kick’) is an achievement, whereas *bu* (‘mend’) is an accomplishment. The difference in grammaticality seems to be connected with the role of the inner object. In (5.173) the inner object is a result object, that is, it exists as the result of the event. In (5.174), on the other hand, the reverse is true, the inner object is presupposed by the event. The problem here is that this is a constraint placed on the relation between the verb and the inner object. More generally with the inner object constructions analysed above the semantic constraints involve the relation between the inner and outer object.

5.4 Conclusion

Much of the earlier controversy around *ba* stems from dissention over whether or not *ba* has any independent semantic content. Either *ba* was assumed to be a purely formal particle, the function of which was to assign Case, or it was argued to have semantic content and this was assumed to translate into thematic content. Under the hypothesis that abstract Case does not play a role in Chinese, *ba* cannot be a Case marker. However I have also argued against the second option of assuming thematic content to *ba*. Instead I have argued for a second kind of semantic information that plays a role in syntactic description; namely event structure. Thus *ba* is shown to have non-thematic semantic content, explaining the interpretation of:

(5.175) ni ba ta shenme?
 you *ba* her what?
 ‘What did you do to her?’

This has always been used to argue that *ba* must have an independent thematic role since without a verb, the *ba* object still is assigned the affected theme role. I have shown in this chapter that the affected interpretation is the consequence, not of a particular thematic role but of the a-role assigned by *ba*. In this way, the constraints on *ba* are captured and shown to be intrinsically linked, and the supposed control facts of Huang 1991 fall out from this approach. Furthermore the relationship between *ba* and causality is now understood as a consequence of the contingency relations between subevents of a complex event.

Chapter 6

Conclusion

6.1 Achievements

The underlying question motivating this thesis concerned the mechanisms in Chinese that license the satellites of a lexical head and determine their surface order. It was hypothesised in the light of the increasing emphasis on the lexical functional distinction that the solution to this question was to be found in an investigation into the functional categories of Chinese. This approach was found to be both relevant and fruitful.

Since Chinese is not an inflectional language, the set of functional categories cannot be established via the morphological inflections on the lexical head but rather are determined on the basis of the thematic properties of the morpheme in question and its interaction with the related verbal or nominal lexical head. It was argued that the set of functional categories breaks down into two main kinds: operator-like categories with some intrinsic semantic content, such as Det, Neg, etc, and a set of functional preposition-like heads that are involved in the licensing of the core and non-core thematic roles of a lexical head¹.

The operator type was illustrated with an analysis of the two negative particles *mei* and *bu*. The analysis of negation in terms of an independent projection NegP provided the necessary structure via which the different behaviour of the two negative particles could be captured. The specifier properties of the negative particle *mei* also supplied

¹One other type of functional category in Chinese is the particle *de* which is basically a modification marker. Depending on the modifier and the modifiee, this is written with three different characters (although this is a recent innovation in the written language) and in the dialect I am most familiar with *de* can have two different pronunciations, but it is not clear to me whether it is a single morpheme or not. This type was not addressed here.

further evidence for the approach of Cann 1993, in which categorial information is distributed within a projection. In this approach, the D-structure specifier of a projection contributes to the category specification of the whole projection via unification of its features with those of the head. On the basis of the interaction of negation with other verbal projections, the concept of projection *conflation* was proposed: negation is viewed as a defective projection which cannot exist independently, so has to conflate with an adjacent functional projection prior to lexical insertion. This subsumes the notion of syncretism.

It is the second type of functional category mentioned above, the functional preposition, that sheds light on the original problem; how the satellites of a lexical head are licensed, and what determines their surface word order. The central claim was that the role of these functional prepositions is not Case assignment but thematic mediation: the mechanism whereby the thematic role of a lexical head is licensed via an argument in the argument structure of a functional head². This analysis explains the conflict between the fact that these functional heads appear to head an independent PP, and their structural and thematic dependence on the lexical head. The example of the locative *zai* was discussed in more detail and it was shown that the distribution of *zai* was the effect of its dual status between thematic mediator and an actual lexical preposition with an independent thematic grid. Lastly, an analysis of the *ba* construction was given within this approach. The distinguishing features of *ba* as a thematic mediator were shown to stem from the additional properties it has as an aspectual role assigner. In this way the controversy over the thematic status of *ba* is resolved. Its status as a thematic mediator explains how it appears to be a simple object licensing particle, while its aspectual grid explains its apparent semantic content. The account also explains the difference in interpretation between a *ba* construction and the corresponding non-*ba* sentences.

²For the sake of brevity, I will throughout the remainder of this section use the term *coverb* to refer to this type of functional head. In fact the set includes not only the set of verbs that also are used to license satellites, eg. *gei* ('give, for'), but also unambiguous "prepositions" such as *cong* ('from'), *ba* and verb reduplication constructions.

6.2 Future directions

6.2.1 Chinese

There are two principal directions in which the work on Chinese described in this thesis could be developed. The first is the role of the thematic hierarchy in the ordering of thematic role assignment. It was suggested in chapter 4 that the postverbal appearance of the locative mediator might be explained in terms of the thematic hierarchy. The task is to establish which version of the hierarchy should be adopted and the extent to which it is involved in the ordering of preverbal elements. Ernst claims that the ordering restrictions on preverbal PPs do not correlate with any independent feature of the PP, but he addresses neither the thematic hierarchy, nor the distinction between core and non-core thematic roles, nor that between selected and non-selected thematic roles. This distinction has here been assumed to be relevant to the order of thematic role assignment, in that core thematic roles are assigned before non-core thematic roles. It remains to be seen whether there is some interaction between the two perspectives on thematic roles.

The other question that arises out of this work is how far the analysis of the *ba* construction can be applied to the adversive passive construction involving *bei*. Wang 1970 shows how the *bei* construction to a very large extent parallels the *ba* construction both in the constraints that apply to it and in the effect it has on interpretation. This would suggest an account in which *bei* is also analysed as an a-role assigner but that the two a-roles are assigned the other way around, ⟨Aff⟩ to the specifier of *bei* and ⟨Cse⟩ to the complement of *bei*.

6.2.2 Thematic Mediation

Moving away from Chinese, a number of crosslinguistic phenomena emerge as potentially susceptible to analysis as instances of thematic mediation. One perennial problem that might be profitably addressed in terms of thematic mediation is the analysis of subjects. The traditional analysis of subjects assumes a subject predicate type approach, under which the subject is indirectly assigned a thematic role by the VP (Chomsky 1986a. Concomitant with the functional categories approach to syntax has been the VP internal subject hypothesis (Fukui and Speas 1986; Koopman and Sportiche 1989).

Under this approach, the subject is base generated VP internally and directly assigned a thematic role by the verb. The functional category Infl is then analysed as a raising verb, triggering NP movement to Spec IP for Case reasons. Under the first approach, subjects are inherently external and this is reflected in the way they are assigned a thematic role. In the latter approach, the subject predicate structure is an effect of licensing. Under thematic mediation, an alternative proposal is that subjects are represented in the thematic structure of the verb, but not in the argument structure of the verb. They therefore always require mediation via some functional category. Under this approach, subject predicate structure is inherent in the argument structure of a predicate rather than in the thematic structure of the lexical head. This is similar in insight, although not in implementation, to the analysis of external arguments in Grimshaw 1990.

A construction that might insightfully be analysed as involving thematic mediation is the light verb construction. Grimshaw and Mester (1988) analyse a construction involving the Japanese light verb *suru*. When it occurs as the main verb of a clause, it is accompanied by a direct object NP, and the participants of the event denoted are supplied by the NP, as in:

- (6.1) sono deeta -ga wareware -ni [[kare -no riron -ga
 that data -NOM us -to [[he -GEN theory -NOM
 machigatteiru -to] -no shoomei] -o shiteiru.
 mistaken -C] -GEN prove] -ACC suru.
 'These data prove to us that his theory is mistaken.'

This is not unlike light verb constructions in English, for example with the verb *make*:

- (6.2) I made Michelle an agreement to polish her boots.

Under Grimshaw and Mester's approach *suru* has an empty argument structure, and the a-structure is supplied by the head noun, in this case *shoomei* ('proof'). Grimshaw and Mester use this data as important evidence for the hierarchical assignment of thematic roles. It is not clear however, how arguments of the head N, get licensed as satellites of the verb, particularly as they give evidence that the surface position cannot be argued to be a function of Case. The theory of thematic mediation supplies the answer to this problem. Under this approach, the light verb can be analysed as a thematic mediator supplying the argument positions via which the thematic roles of the head noun are

discharged. Crucially, under this analysis the light verb has its own argument structure but no thematic structure, while the noun has an articulated thematic structure but can not independently discharge the thematic roles because it lacks argument structure. Hence, where the noun does not appear with a light verb, the thematic roles of the noun are mediated via prepositions and the genitive 's:

(6.3) Michelle's agreement with Cate to polish her boots.

6.3 The functional projections approach

One of the advantages of applying the lexical-functional distinction to Chinese is that it provides a system in which to capture much of the categorial ambiguity of Chinese. The categorial status of the coverbs in Chinese has triggered many a debate over whether they are in fact verbs or prepositions. But this is no longer an issue if they are analysed as functional heads since the category of the coverb is simply that of the projection in which it appears, and the appearance of the coverb is not constrained by its category but by its interaction with the thematic structure of the lexical head. It is also possible that the noun-verb ambiguity of many of the lexical heads in Chinese might now be resolved, since what distinguishes the nominal lexical head and the verbal lexical head is the argument structure of the head and the functional categories via which the satellites of the head are discharged. Similarly, the ambiguity of statives between verbs and adjectives should be an effect of the functional heads with which they combine. This is clearly a direction for future investigation.

It is the fact that features must agree within an extended projection that allows these categorial ambiguity problems to be resolved, and at the same time also eliminates a certain amount of redundancy in lexical specification. This same feature of the functional projection approach captures the relational nature of functional heads and in this way provides a more appropriate structure which captures the parasitic relationship between the lexical head and the coverb.

6.4 Parametric variation

The emphasis in the functional category theory on the actual morphemes of the language, also facilitates an approach to parametric variation, which is both less abstract and

more restrictive. The grammatical properties of Chinese are not attributed to abstract parameters relating to the modules of the grammar, but are fixed in the lexical representation of individual morphemes that are projected into the syntax. At first blush, it might appear from this that the functional projection approach yields an analysis of only the differences between individual languages³. If this were the case, it would run counter to the fundamental aim of linguistics to discover the underlying principles that define natural language. In fact, what the functional projection approach does, is seriously restrict the domain within which languages can vary, to the effect that the computational system of UG and perhaps also the substantive lexicon are invariant. Furthermore, what this investigation into the functional categories of Chinese suggests is that it is the morphological properties of the functional heads that differ, rather than the basic types.

6.4.1 Parametric variation and the acquisition argument reviewed

In Chapter 2, one of the motivating arguments for the lexical functional distinction was that it restricted parametric variation to the functional lexicon, and hence simplified the problem of language acquisition, by reducing it to the problem of acquiring the functional lexicon of the language. What we saw in this thesis was that Chinese displays an apparently reduced set of types of functional category, in that it lacks any agreement inflection and therefore does not project any of the Agr categories, which are associated with licensing (Adger forthcoming; Chomsky 1992). Therefore, either Chinese was a counterexample to the functional category based theory of language variation, or elements that appeared to be lexical in Chinese had to be reanalysed as functional.

A priori, the functional category based theory is preferred over a mixed theory of language variation, since it is more restrictive. This thesis therefore defended the hypothesis that certain superficially substantive elements in Chinese, namely the coverbs, lack a criterial property for lexicality and hence fall out as a set of non-canonical functional elements. This research has established that the syntactic role of these non-canonical functional elements is precisely that of the “missing” set of functional categories, in that they act as licensors. In other words, the locus of the parametric variation with respect

³For example, as a consequence of this approach the notion of a grammatical category becomes epiphenomenal, a convenient shorthand for the linguist rather than a linguistically real concept.

to the system of licensing adopted by a language is confirmed to be restricted to the functional lexicon.

These claims about parametric variation lead to predictions relating to language acquisition that should be verified through investigation into child language. The presence or absence of Abstract Case as the licensing mechanism for a language was claimed to be associated with the presence or absence of the licensing Agr categories. In other words, the locus of the Case parameter is claimed to be the set of inflectional morphemes. We would therefore expect that Case effects would only appear in child language along with acquisition of the inflectional system. If we make the additional assumption that the formal licensing shown for Chinese is the unmarked mechanism for licensing in UG, then we would expect child language prior to the acquisition of the agreement system to display Chinese style formal licensing.

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